YACHTING

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Canoes and Canoeing

The Appeal of the Canoe Is Felt by Many Sportsmen, for It Is an Inexpensive and Handy Little Craft That May Be Handled in River, Lake and Bay

By GERALD TAYLOR WHITE

TO trace the canoe back to its origin, would be almost an impossibility because aboriginal man designed and sailed the first canoe. At first he merely rode astride of a fallen tree trunk and he paddled with his hands. At some later date he found that when the trunk had a leafy branch that projected up in the air, he could make some headway before the wind. While the hollowing out, and actual shaping of a canoe was probably delayed for years, and maybe centuries; it followed naturally. The first we find of canoes being used for pleasure, is in 1865, when a Scotchman named John Macgregor built a boat which he called the Rob Roy. This boat was built of oak, fifteen feet long by twenty inches beam and her hull weight is given as eighty pounds. This boat carried Macgregor on a thousand mile cruise through the waterways of Europe. She was decked in fore and aft, and had a narrow deck on the sides. The cockpit was small, simply being sufficient for the crew of one man. A double paddle was used for propelling the craft and a lug sail and jib helped out in fair winds.

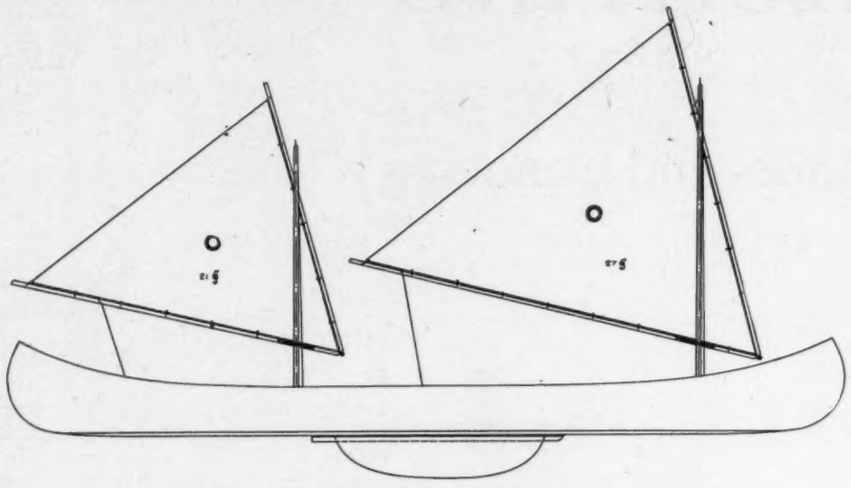
SAILING A PADDLING CANOE IS GOOD SPORT AND ANY OPEN CANOE MAY BE FITTED WITH A SAILING OUTFIT AT SMALL EXPENSE AND SAIL AND LEE-BOARDS QUICKLY ATTACHED AND DETACHED WITHOUT DISFIGURING THE CRAFT

The story of Macgregor's cruise was published and the building and sailing of this type of boat became very popular. Yachtsmen came to realize that a decked canoe was as seaworthy as a regular type sailboat of twice her length. The initial and upkeep expenses were trivial, and the canoe could be navigated in waters that were too shoal for any other type of boat. The transporting of the boat by rail or wagon was simple, and there was no necessity of leaving the boat at a mooring where she was more or less in danger from passing craft. The sport increased by leaps and bounds, spreading to all corners of the globe. The zenith of popularity was reached in about 1890. After that date, the decked sailing canoe seemed to gradually drop in favor of the lower priced canvas boat such as we now see on every stream.

The canvas covered boat was a development of the birch bark craft of the American Indian. Not being decked, it had a larger carrying capacity, and the first cost was very low. Danger of breaking a plank and causing a bad leak was obviated by the canvas skin. Thousands of these canvas or rag boats, as they are called are built annually in this country. Not only are they used for pleasure purposes, but the woodland hunter and trapper depends upon this type of boat for his transportation. A first rate canvas covered canoe can be purchased complete with paddles for from $35.00 upwards. For general pleasure service the sixteen- or seventeen-foot boat seems to be the most popular. In case a boat to carry two men with their duffle and supplies on a cruise, is needed; the eighteen-foot length is to be recommended.

THE JOY OF A VACATION SPENT IN THE OPEN, IN FLANNEL SHIRT AND KHAKI, IS WELL KNOWN AND APPRECIATED BY THE SPORTSMAN WHO TRAVELS BY CANOE. BY GOING LIGHT WITH ONLY THE NECESSITIES SNUGLY PACKED IN THE DUFFLE BAG AND WITH ONLY HEALTH AND COMFORT TO CONSIDER, EVERY HOUR OF THE CRUISE IS ENJOYED BY HE WHO TRAVELS BY LAKE AND STREAM IN A STAUNCHLY BUILT CANOE

Originally the canvas covered boat was intended to be propelled by paddles alone. It was natural however that a sail be added. Many different rigs were tried, but the lateen sail, with its short mast has been found the most desirable for this type of boat. In one of the accompanying plans there is a drawing of the author's boat as it was rigged during the summer of 1917. This sail was of balloon silk, and had an area of about 27 square feet. The majority of the sailing canoes of this type are equipped with lee-boards such as are shown in the detail. There can be no doubt that leeboards are an efficient device to prevent leeway when the boat is off the wind. Personally, I do not like them on account of their weight and their lack of ship-shape appearance. They can be taken off the boat in a minute by loosening two thumb nuts, and the boat paddled as usual. An attempt to get away from the leeboards and still keep the draft low enough to land on a beach was made on my boat last year. I fastened an ½ in. by 5½ ft. steel angle to the bottom of the canoe. Not only did this angle stiffen the boat, but it prevented a certain amount of leeway. This rig was used on a three hundred mile cruise to Lake George from New York. The size of the sail was found

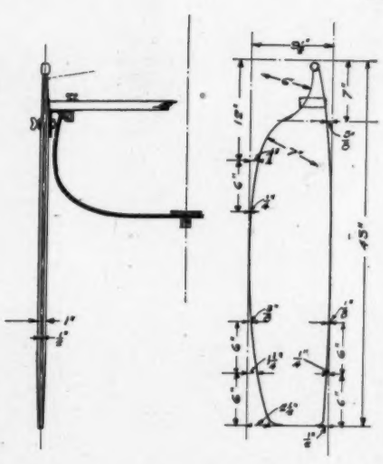


THE DOUBLE LATEEN RIG IS IDEAL FOR AN OPEN CANOE

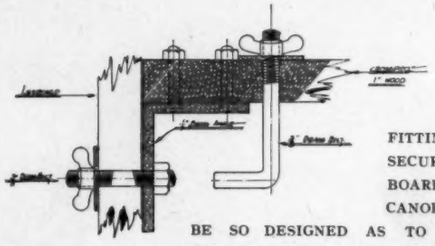
insufficient however in light weather but in a breeze of wind the sail was as large as could be carried. When I decided to increase the sail area, I also decided to increase the area of my lateral plane. This meant either leeboards or a fixed keel. As shown in the drawing of my new rig, the latter was given the choice. The new keel is of white pine, ¾ in. thick tapered, and 11 in. deep, and is shaped to the arc of a circle on the bottom. It fastens to the steel angle with three thumb screws and can be removed in a minute as long as the boat is out of water. When landing on a beach it is necessary to step overboard when the water has shoaled to about a foot. My new sail will be steeppd as shown, and will be of twenty-one feet area. My total area will therefore, be about fifty feet.

The two sails are balanced so that the center of effort is directly over the center of lateral resistance so steering may be done with a paddle. Many canoeists use a rudder, but my experience has been that the rudder is not worth the trouble it causes when portages are to be made. For strictly afternoon sailing the rudder would no doubt be of advantage. The mainsail is rigged with a halliard, but the mizzen is low enough so that it may be quickly removed entirely. The gaff is fitted with a ring which fits over a pin in the mast. Much of the steering will be done by handling the sheet.

In rigging a boat of this kind it is necessary to keep the number of parts, and their weight as low as possible. In my last year's cruise I had to make countless portages, and at each portage each part has to be unpacked and then repacked at the other end. The tent I used last year may be of interest. Upon making camp we turned the canoe over on its side. The mast prevented it going all the way over. A strip of ten-ounce canvas 18 ft. by 6 ft., was then thrown over the boat and the ropes staked out back of the canoe. The front was left open until we were ready to turn in, when it was staked out forming a lean-to, with the canoe forming the back. The side of the boat formed an excellent shelf upon which the outfit was distributed so that we could find anything on the darkest night. The chief disadvantage of this shelter scheme was that the canoe rested entirely on its side, and unless the ground was very smooth and soft, the sides of the boat were damaged. Next season I intend to rely upon my axe to cut four crotched branches about three feet long. By driving these branches in the ground and laying the masts in the crotches I will form a frame work upon which the canoe can be placed upside down. On pleasant nights no other shelter will be needed and on rainy nights the canvas can be stretched over the whole outfit and staked out. Naturally these methods of constructing a shelter will not do if one expects to remain in damp during the day, but is best for going light. There is one distinct advantage in having the canoe act as a part of the shelter. Undesirable citizens visiting the camp at night, find the entire outfit under cover and two men practically sleeping on the outfit. There is nothing lying around that might be stolen.

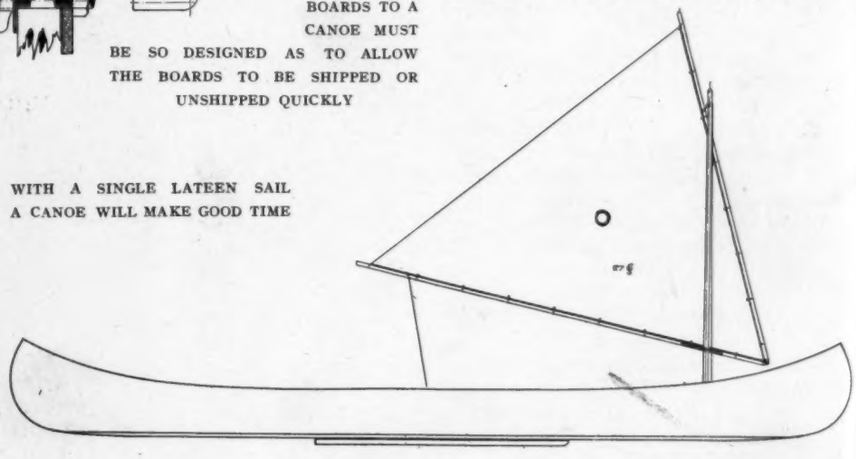


LEE BOARDS ARE CUMBERSOME FITMENTS BUT FOR ALL THAT IF DESIGNED PROPERLY DO THEIR APPOINTED WORK WELL



FITTINGS TO SECURE LEEBOARDS TO A CANOE MUST BE SO DESIGNED AS TO ALLOW THE BOARDS TO BE SHIPPED OR UNSHIPPED QUICKLY

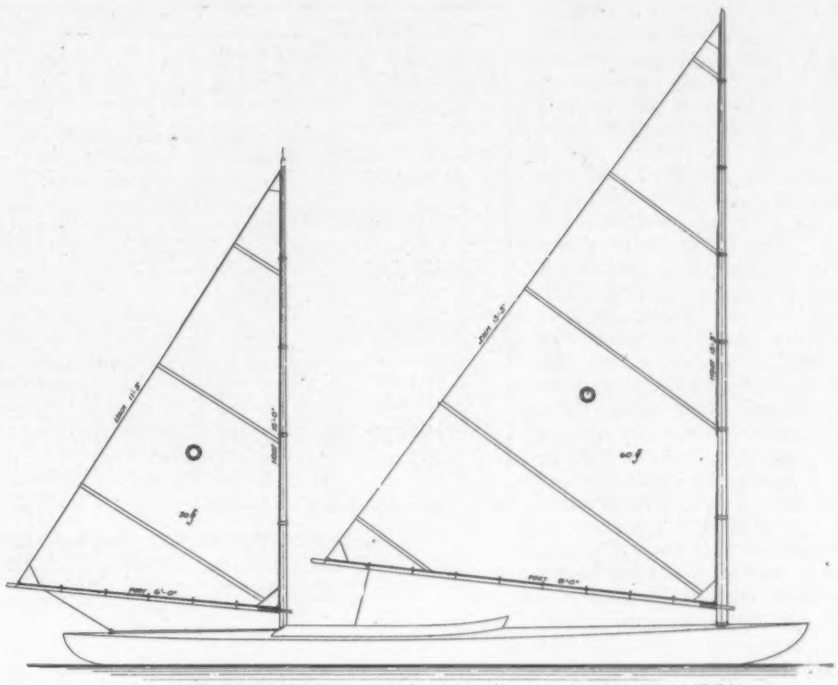
To the out and out yachtsman the canvas canoe is not enough of a boat. He desires something that has more rigging and better seagoing qualities. Complete plans of such a boat are shown. This boat is planked with mahogany and is seventeen feet long and equipped with a center board. Two leg of mutton sails with an area of ninety feet provide propulsion. While the boat may be either paddled or rowed, it is intended that such would only be done in case of a flat calm. With her long decks and water tight bulkheads this boat can go through any reasonable sea. In fact the design was suggested by the seventeen-foot canoe in which Frederick Fenger cruised in the open ocean from Granada through the islands to the South American Coast. Mr. Fenger proved that a boat of this type is as seaworthy as the average cruising sail boat of thirty-five or forty foot length. A boat of this type will cost complete about $350.00. Properly built she



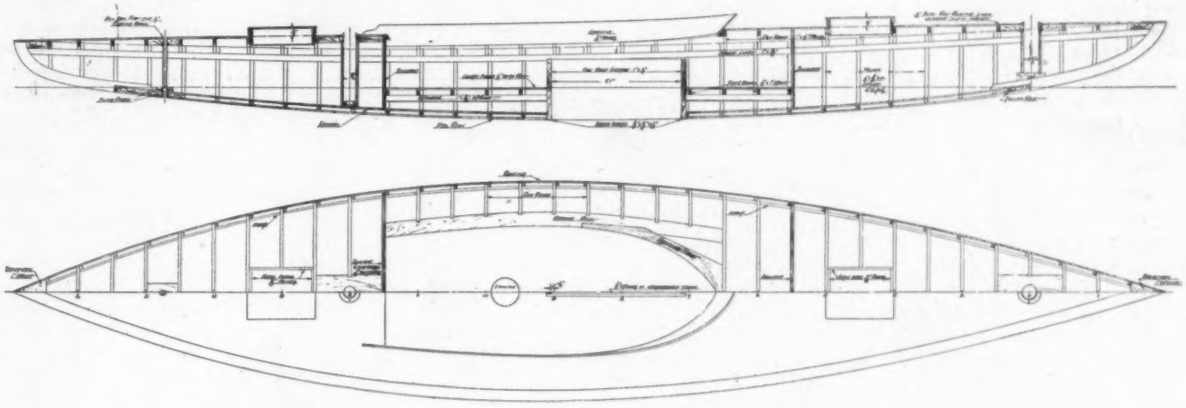
WITH A SINGLE LATEEN SAIL A CANOE WILL MAKE GOOD TIME

should last twenty years. No trip, short of crossing the ocean itself, is too much for such a boat. In general adaptability there is no comparison between her and a regular sail boat that could be built at the same price. It must be remembered in this connection that the sail boat would have to be equipped with an engine to get the same efficiency. As far as speed is concerned, this boat will beat fifty per cent of the ordinary type of open launches in any sort of a breeze.

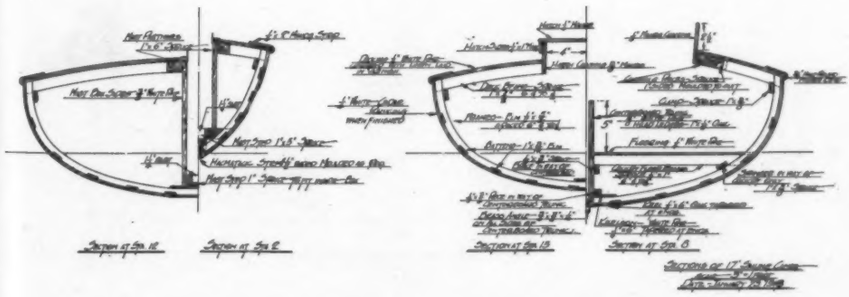
Canoes, as described so far, have one big advantage. When the day's run is over, you lift them out and stow them in a house. The equipment is placed in a locker. Nothing short of the destruction of the house by fire will damage the boat. You, who have owned larger boats, know the damage that is caused by storms and boats adrift, sweeping down upon the boat you leave at a mooring. River pirates make the keeping of brass equipment very precarious. Hauling out and launching takes time and money. In the spring you have considerable work to accomplish, and then you often have to wait until some other boat has been moved out of your way before you can go over. The canoeist does nine-tenths of his fitting out during the winter in his own home or in a covered shed; and he can launch the boat in ten minutes when a pleasant day comes along. A canoe is always in commission.



A 17-FOOT CANOE SHOULD CARRY TWO LEG O' MUTTON SAILS WITH A COMBINED AREA OF APPROXIMATELY 90 SQUARE FEET



THE DECK PLAN AND ELEVATION SHOW A WELL CONSTRUCTED CRAFT WITH WATER TIGHT COMPARTMENTS BOTH FORWARD AND AFT



FOUR TYPICAL ATHWART-SHIP SECTIONS GIVE CONSTRUCTIONAL DETAILS AND SPECIFY MATERIALS

To many, the letters C-A-N-O-E spell DANGER. They seem to think that a canoe turns over at the slightest move of the occupant. Some of the smaller and lighter boats are rather cranky, but my canvas boat, eighteen feet long and three feet wide is stable enough so that I can sit upon the gunwale without shipping water. I have never turned over, nor do I know an experienced canoeist who has. This remark does not cover the racing boats that carry tremendous sail area and are kept upright by the crew hiking out to windward on a seat that extends beyond the side of the canoe. That type of boat is no more a real canoe

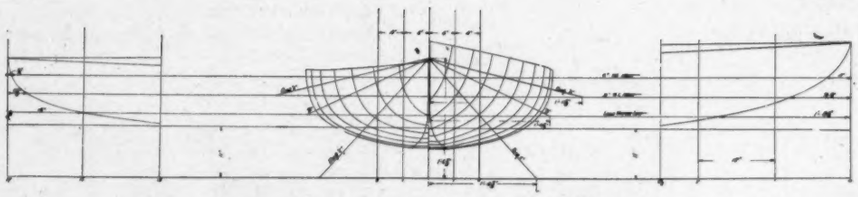
than a hydroplane is a cruising motor boat. Neither does my remark cover the boats that are paddled with both members of the crew sitting up on the seats that are usually built in the boat. The forward seat should always be removed entirely, and the after seat never used when sailing, and only for paddling when a heavy member of the crew or a hundred pounds or so of duffle, is placed flat on the floor. The person who sits flat on the floor should use double paddles. For two men to sit up on the seats with no weight on the floor of the boat is dangerous to say the least. Every canoeist should be able to swim, but for that matter so should every yachtsman. The American Canoe Association which controls the sport in the same manner that the A. P. B. A. controls motor boating; makes swimming one of the requirements of admission. One point in favor of the canoe in case of accident, is that it is unsinkable. Three or even four persons can be supported in the water by an ordinary open canoe. A good canoeist can right an overturned boat and bail it out and climb in from the water This cannot be done with any other type of boat.

There are also plans shown of the last word in canoes. This type of boat is known as a canoe yawl, or canoe yacht. Boiled down, a canoe yacht is a boat sharp at both ends, usually built with a keel and ballasted, and capable of providing cabin accommodations for at least two men. Such a boat could cruise the Atlantic in safety. The boat shown is twenty feet long and six feet wide. Her displacement is about three thousand pounds, and her sail area 271 square feet. Forward of the cockpit, which by the way is self-bailing, there is a space enclosed with a hinged hatch. This space is floored with a cushion and provides ample sleeping space for two men. By lifting the hatch and slipping in two triangular pieces of wood, each fitted with a port light, the cabin has a headroom of over four feet at the after end. Such a boat can be fitted with a small engine if desired. This boat is a development of the English canoe yachts which are used off the English Coast in the heavy seas of the Channel and the North Sea. Mr. W. P. Stephens has done much to father this type of boat in this country, and the late Albert Strange was responsible for many of the type in England. To these gentlemen, and to Mr. Frederick Fenger I wish to give my thanks for many of the suggestions used in the plans accompanying this article.

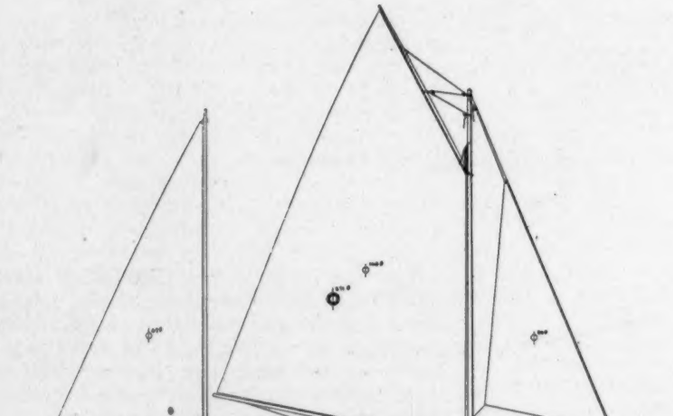
(*Continued on page 252*)

Sta.	Half Breadths: Bottom of Keel	2" W.L. Below	Load W.L.	3" W.L. Above	6" W.L. Above	Deck Line	Width along Diagonals: Diag. A	Diag. B	Diag. C	Heights above Base: Keel	Batt. 1	Batt. 2	Deck Line	Sta.
0	0-0-2									1-10-12			1-10-12	0
1	0-0-2			0-0-12	0-2-7	0-3-11	0-3-3	0-9-4	0-13-12	1-0-4			1-2-13	1
2	0-0-4		0-1-0	0-4-8	0-5-13	0-7-0	0-6-8	0-6-8	0-5-14	0-2-8	1-1-12		1-3-4	2
3	0-0-8	0-0-11	0-4-5	0-7-6	0-8-15	0-9-14	0-9-7	0-9-6	0-9-3	0-7-14	0-10-12	1-2-14	1-3-11	3
4	0-0-14	0-4-12	0-7-9	0-10-6	0-11-11	1-0-8	1-0-2	0-11-13	0-11-12	0-6-11	0-8-12	0-11-5	1-8-1	4
5	0-1-8	0-7-8	0-10-10	1-1-2	1-2-4	1-2-12	1-2-8	1-2-5	1-1-8	0-5-13	0-7-8	0-9-6	1-7-9	5
6	0-2-0	0-10-4	1-1-3	1-3-6	1-4-5	1-4-5	1-4-8	1-4-5	1-2-7	0-5-6	0-6-12	0-8-2	1-7-1	6
7	0-2-8	1-0-8	1-3-7	1-5-3	1-5-14	1-6-2	1-6-2	1-6-0	1-3-14	0-4-15	0-6-4	0-7-4	1-6-11	7
8	0-3-0	1-2-0	1-4-12	1-6-15	1-6-14	1-7-0	1-7-4	1-7-0	1-4-3	0-4-12	0-6-0	0-6-11	1-6-6	8
9	0-3-0	1-2-12	1-5-6	1-6-13	1-7-6	1-7-6	1-7-11	1-7-8	1-4-14	0-4-11	0-5-14	0-6-9	1-6-3	9
10	0-2-10	1-2-9	1-5-3	1-6-11	1-7-3	1-7-3	1-7-8	1-7-8	1-4-10	0-4-13	0-6-1	0-6-13	1-6-0	10
11	0-2-3	1-1-9	1-4-8	1-5-13	1-6-5	1-6-5	1-6 7/8	1-6-10	1-4-4	0-5-1	0-6-5	0-7-2	1-6-0	11
12	0-1-10	0-11-10	1-2-9	1-4-4	1-4-13	1-4-14	1-5-5	1-5-5	1-3-6	0-5-9	0-6-15	0-7-12	1-6-0	12
13	0-1-2	0-8-14	1-0-3	1-2-0	1-2-11	1-2-13	1-3-1	1-3-4	1-2-4	0-6-4	0-7-11	0-8-12	1-6-0	13
14	0-0-12	0-5-0	0-9-0	0-11-2	0-11-14	1-0-1	1-0-4	1-0-8	1-0-9	0-7-3	0-8-12	0-10-3	1-6-8	14
15	0-0-6		0-4-15	0-7-8	0-8-7	0-8-11	0-8-14	0-9-2	0-9-14	0-8-7	0-10-4	1-3-0	1-6-8	15
16	0-0-3			0-3-6	0-4-7	0-4-11	0-5-14	0-5-1	0-6-0	0-10-1	1-3-6		1-6-15	16
17	0-0-2									1-7-5			1-7-5	17

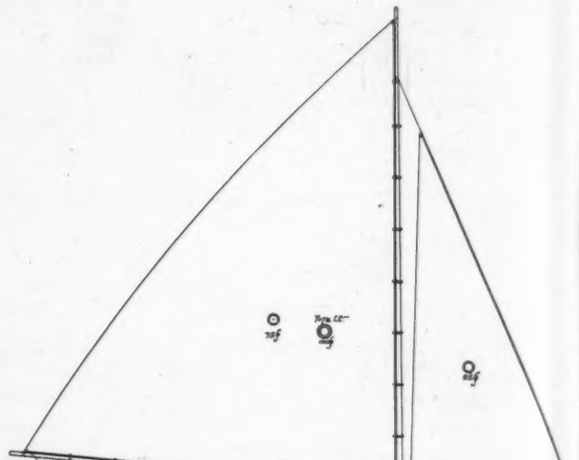
ALL MEASUREMENTS IN FEET, INCHES & SIXTEENTHS.
ALL MEASUREMENTS TO OUTSIDE OF PLANKING.
STATIONS SPACED 1'-0" APART.



THE LINES SHOW A WELL FORMED CRAFT AND ONE QUITE EQUAL TO SAIL FAST IN LIGHT OR HEAVY WEATHER



THE CANOE-YAWL IS A TYPE OF BOAT MUCH USED IN ENGLAND



A SLOOP RIGGED V-BOTTOMED CANOE WOULD BE A HANDY AND FAST CRAFT

Notes from The Log of An Old Whaler

Adventure and Romance Have Ever Been Associated With the Sea and the Sturdy Men Who Have Made Two and Three-Year Voyages in Quest of Bone and Blubber, Have Seen Many Novel Sights and Have Many Interesting Things to Tell

A NIMROD OF THE SEA.

WITH the passing of the American whaling fleet the flag of the Nation ceased to fly at the main-peak of our most picturesque sailing craft and the plucky sailors who have for so long experienced the adventures of the deep, have been almost forgotten. A few staunch ships still leave our eastern ports to cruise in the waters of the far north but the rapidly whirring wheels of progress have pushed other industries to the fore and the once big whaling fleet has dwindled to but a few craft. To give a truthful account of life aboard a whaling vessel and weave the woof of fiction to the warp of fact, has often been attempted but not always successfully accomplished by writers in stories of the sea. Many modern story makers have well described the varied aspects of the sea and its seafaring folk, but the fascinating story of the old-time whaler is so truthfully chronicled in *A Nimrod of the Sea* that I am sure my shipmates will find it interesting to read a few chapters taken from Capt. Morris Davis' tale which was published almost half a century ago by Harper & Bros.

To give some idea of the development of the American whaling fleet a little history will serve to better introduce the huntsmen of the sea, so let us begin at the beginning, in the reign of King Alfred who, it is said, appeared in England as becomes a gallant old Norseman, and told his majesty wondrous stories about the whales captured by the Finns off the coast of Lapland. Alfred was so impressed with the enterprise that he strove to persuade his people to engage in the whaling industry. But they did not embrace the opportunity, and until 1598 there is no record showing their interest. In that year, according to Hakluyt in his "Voyages and Discoveries," a merchant of London wrote to a friend with the request that he "be advised and directed in the course of killing a whale." In due time the inquirer received information that competent whalemen and tools could be obtained in Biscay, where the people had been engaged in the hazardous business since 1390. The correspondence ensuing resulted in the equipment of a whaling fleet, which met with great success and was increased by the English until they rivaled the fisheries of Greenland. But things did not run altogether smoothly for the Dutch intruded on English ground, and in the struggle that followed all Dutch tackle and oil were seized, and they were allowed to depart under the penalty of losing their vessels. Naturally the Dutch submitted but only until their warships could arrive to protect them, when they resumed the business and continued the whaling industry unmolested.

Soon after this the English abandoned whaling and did not again take it up until the reign of Charles the Second. Some idea of the importance of the business of whaling at an early date may be gained from the statement that in 1618 the whale-fisheries of Holland employed 12,000 men. While this may be an exaggeration it is significant that in a book called Discourses upon Trade, published in 1670, appears the statement that "the Greenland whale-fisheries of the Dutch and Hamburgers have annually 400 to 500 ships, while the English have only one." In the forty-odd years ending with the year 1721, the Dutch are credited with making some 5,886 voyages and capturing 32,906 whales valued at $80,000,000.

So prosperous a traffic soon revived the industry again in England, and the government granted bounties to whalemen and allowed them exemption from the press gang. But for some unknown reason capitalists and tars alike avoided the service, and refused the inducements held out to them. The amount of bounty was again increased and all Protestant foreigners were invited to immigrate and avail themselves of all the privileges enjoyed by natural-born subjects.

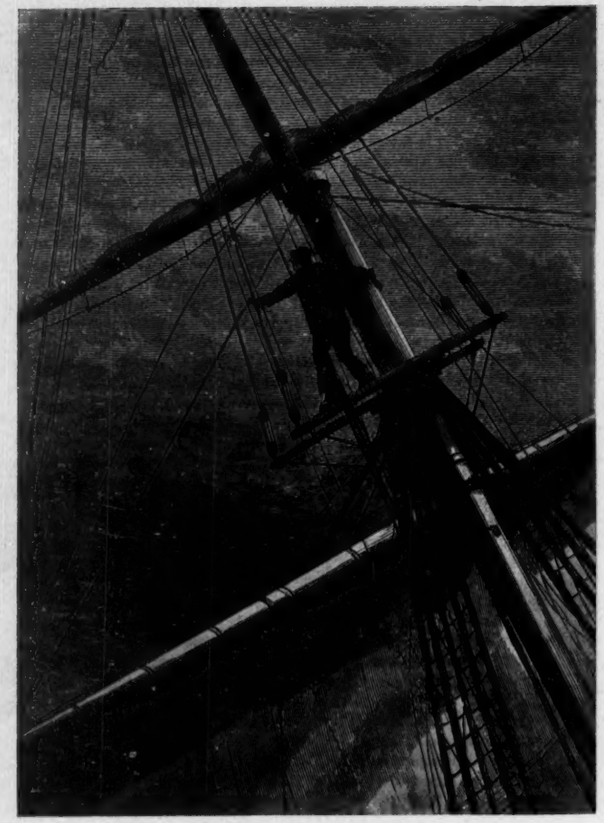
England was a great naval power but despite this was unable to muster a whaling fleet or find the stalwart men to outfit her ships.

The whaling service requires strength, pluck and enterprise. In these things Americans would suit, and in 1672 the fruit of their toil in the whale-fisheries first appeared. The first agreement made upon the subject is a matter of public record and in it "James Loper doth ingage to carry on a design of whale catching on the island of Nantucket. That is to say, James ingages to be a third in all respects, and some of the town ingages on the other two-thirds in a like manner." And from this little spark was kindled a great flame that burned around the world.

The American whaling fleet was begun on the smallest scale in boats from the shore by thrifty, industrious and courageous men. It appealed to Americans as an attractive proposition and in 1761 the small island of Nantucket employed ten vessels of 100 tons each. The next year the fleet was increased to fifteen vessels and in the next year a good fleet of some eighty vessels, all hailing from Nantucket, were at sea in search of whales in near and distant waters.

The secret of the success of the Nantucket whalemen was due to whole-hearted co-operation. From the first the people clubbed together to build or buy a vessel and many branches of labor were conducted by the men who had purchased an interest in the industry. The cooper while employed in making casks took great pride in making them sound and of seasoned wood, to prevent any possibility of leaking on the long voyage. Likewise the blacksmith who forged the iron procured the best material in forming the shanks of his harpoons, which he knew would be put to the hardest test, and the rope maker faithfully tested each yarn of the tow-line to be sure that it would carry 200 pounds of strain, while every woman and girl who made the clothing never forgot during their toil that father, brother or one dearer yet might wear the garment, and extra stitches were lovingly thrown in to save the loss of a button or the ripping of a seam. Thus it was that the profits of the labor were directly enjoyed by those engaged in it, and the workman's interest were the master's and the master's were as those of the workman's.

Naturally the English capitalists could not compete with such a hive of co-operationists, although their government aided them with a premium of $10 a ton burden of the vessels and protected them by excessive duties on American oil as well as granting unusual immunities to the seamen. Despite every effort they could make, the



WHEN THE SHIP HAS MADE THE LONG VOYAGE AND ROUNDS CAPE HORN, THE FEEDING GROUNDS OF THE SPERM-WHALE ARE REACHED AT THE BANKS OF BRAZIL. THE PILOT FISH AND THE ALBATROSS ARE THE ONLY SIGNS OF LIFE ON THE TRACKLESS FLOOR OF OCEAN. BUT WORK A-PLENTY LIES JUST AHEAD, AND AS THE GREENHORNS OF THE CREW HAVE BEEN ALREADY WELL DRILLED IN THEIR PRACTICE OF CAPTURING A DUMMY WHALE, ALL HANDS ARE READY TO QUICKLY RESPOND TO THE FIRST STIRRING CRY FROM THE LOOKOUT AT THE MAST-HEAD—THERE SHE BLOWS!

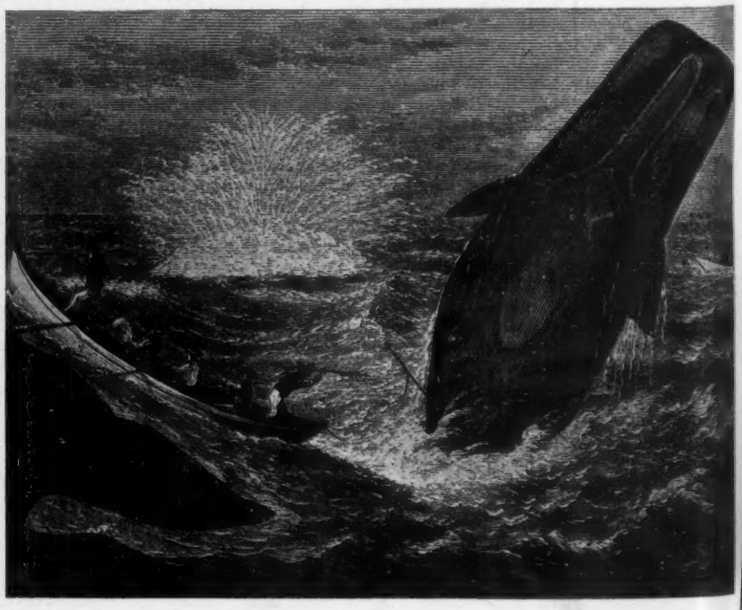
honor and the glory and the profit came to the American whaler, and for many years the seamen of Nantucket, New Bedford and New London were the masters of the whale-fisheries.

While this very brief summary of the growth of the industry is interesting, the excitement, the perils and the prizes of the life aboard a whaling ship will afford the greater charm, and if my shipmates will take a jump backward of some 45 years and stroll along the docks he will see outside some of the shipping offices such unflattering advertisements as this: "Greenhorns wanted for whaling voyages." And near by the observer will see a rustic youth contemplating the notice with wistful eye, ready to obey the first beck of the agent within, and to sign articles for a long three-year's cruise. From his anxious manner we may believe the lad is fearful that the agent will reject him but usually the agent is as anxious to ship him as he is to join the ship. If you go with him you will hear the charms of a whaling voyage eloquently described by some one in the office, in much this roseate manner: "There's fresh beef in plenty, the porpoise is to be had for the catching, and there's muscle in porpoise—It'll stiffen you up, porpoise will. Then there's albatross as big as geese—a little oily, but you'll get used to that, and it makes a man waterproof to eat albatross." And so the youth who needs no urging, willingly writes his name in a sprawling hand to the articles and with a pat on the back is sent to the outfitter's store, where he is rigged in kerseys, canvas and tarpaulin.

The whaling vessel has always been considered one of the best schools for seamen that we have, but the relations between officers and men were quite as brutal as on ships in other service. Captain and officers were absolute masters and the men vindictive slaves. The rope's end and on some occasions, the revolver were the arguments used to bring dissenting minds to their senses. The officers swore at the men aloud and cheated them to their faces. The men swore at the officers under their breath and were treacherous in dark corners. On one voyage there occurred a revolt, the men protecting a lad from the captain's cat-o'-nine-tails. The mutineers were imprisoned without trial by an ignorant consul of the United States in one of the Hawaiian ports and were released after many months by a war vessel. Fights, threats, blows and desertions were of frequent occurrence and out of the large crew that sailed from New London only four or five returned home on the same ship. While the good old days of co-operation were wanting in some ships, there was never a time when the crew refused to work or allowed a whale to pass without lowering the boats and cheerfully risking their lives in its capture. Considering all things the great mass of evidence supports the statement that while the officers may have cause for grievance the sailors were the least to blame.

In the long voyage around Cape Horn to the sperm-whale ground the vessel was followed by flying-fish, the pilot-fish and the wandering albatross. In smooth weather the crews were drilled in capturing a dummy whale. A spar is towed astern and the greenhorns in the boats manoeuvre around it with a great deal of earnestness, and in this way are taught some of the tricks of the trade.

But as soon as the Banks of Brazil are reached real service is due and each man aboard ship is on the alert for the stirring cry from the mast-head of "There she blows." During the day the ship is under sail but at night she is close-reefed to give the crew long watches below and prepare them for the hard work during the day.



THE CHASE OF A 79-FOOT SPERM-WHALE IS EXCITING AND HAZARDOUS SPORT AND SEVERAL HARPOONS AND LANCES ARE OFTEN USED BEFORE A VITAL SPOT IS REACHED AND THE HUGE CREATURE IS BROUGHT ALONGSIDE THE SHIP

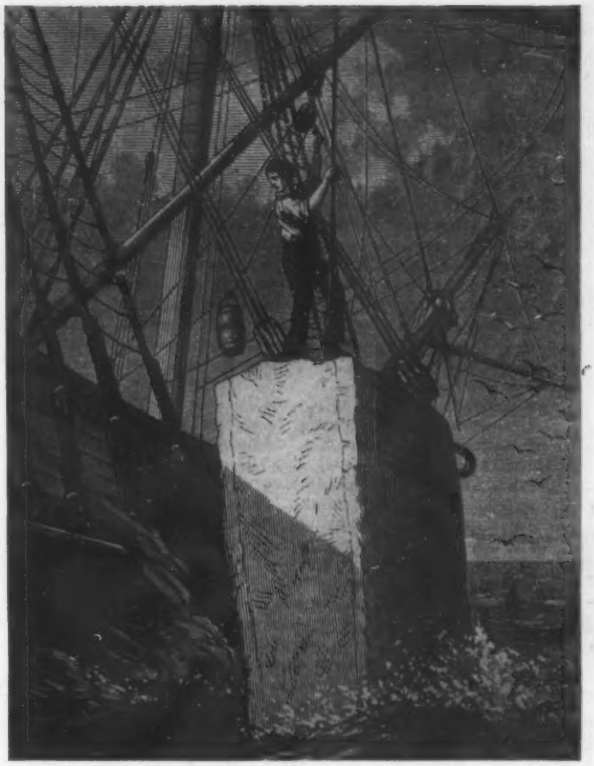
Captain and mate scan the waters and the most insignificant deck hand is alert for the work at hand. When at last the word is shouted from aloft and is repeated quickly and often the boats are manned with well disciplined dispatch.

For clean lines, speed and long service the American whale boats have established a lasting reputation. These crafts are some twenty-eight feet long with a beam of six feet and a freeboard of 22 inches amidships and 37 inches at each end. This graceful sheer makes the finest kind of a seaboat with the required stability. Only the soundest material enters into the construction of these craft, and gunwale and keel are of the best timber, and planking is of half-inch cedar. A boat of this kind can be lifted by two or three men and it will make ten miles an hour in a dead chase by oars alone.

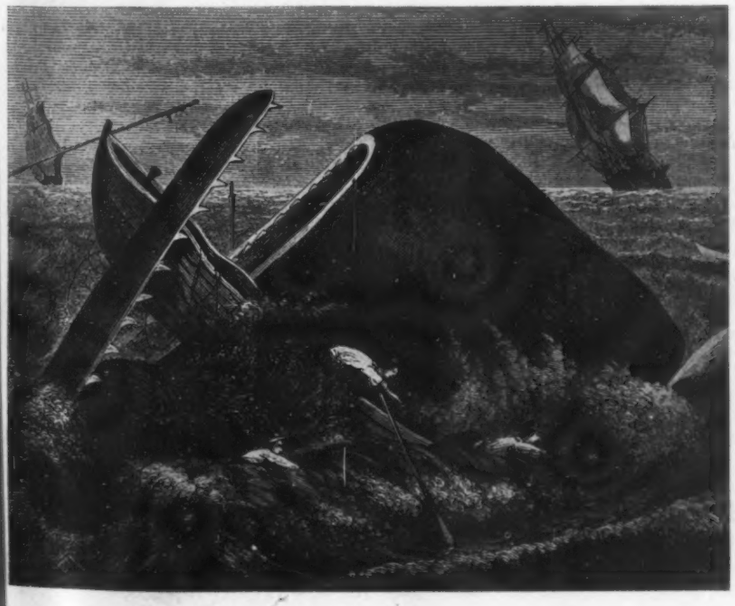
Each boat is equipped with a line-tub, in which is coiled 300 fathoms of the best hemp rope; a mast and sprit sail; oars, harpoons and lances; a small device for putting out fires caused by the friction of the rope; water keg, lantern, compass, waif flags on poles and bandages for wounds. Some ships carried, what was then a new invention, known as the bomb-lance. This consisted of an iron tube about 18-inches long, sharp at one end and provided with elastic wings at the other, which served to guide it like the feathers on the shaft of an arrow. The tube contained six ounces of powder and a fuse, and aim was taken at the vital parts of the whale. Sometimes the bomb killed instantly, but many old whalemen considered it uncertain in fastening and would not use it.

In the light whaleboats the whale is chased and attacked. The whale is variable in habit and movement but always a courageous fighter. Sometimes he is killed by the first dart of the harpoon and dies quietly, but at other times he fights for hours, destroying boat after boat, mangles the men and even charges the ship itself. One vicious customer was taken on the first voyage in this way. As soon as the harpoon had struck the whale ran a short distance under water, carrying the line with him. Then turning in his course he rose to the surface and rushed at full speed with head out of the water for one of the boats, which he stove in and rolled over. The Captain's boat came to the rescue but as the Captain saw the men were not in immediate danger and a third boat was approaching he left them swimming and attempted to coax the whale away from the wreck. But the whale noticed the swimmers and rushed toward them with his jaws open. Before he could reach the men a second harpoon was hurled and he ran off to windward towing the captain's boat in his wake.

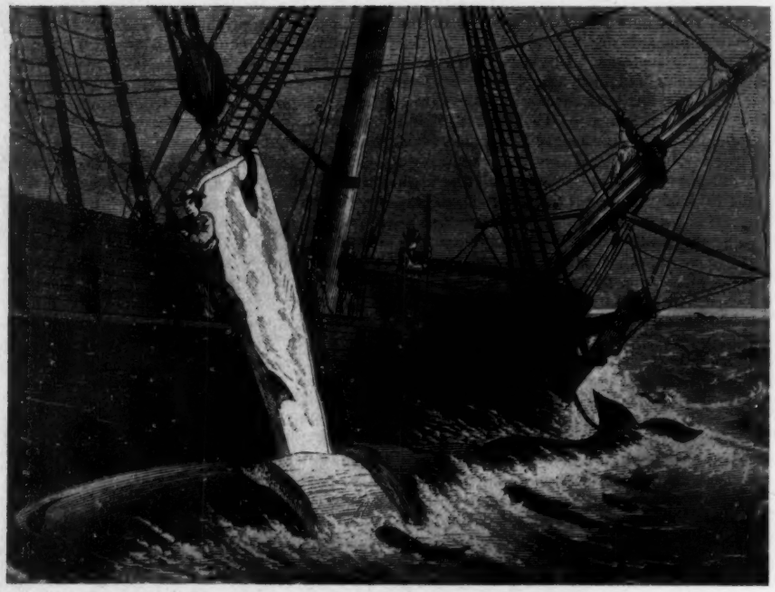
It was now the duty of the bow oarsman to grasp the line and haul the boat alongside, so that the lance might be used on the huge body. This was impossible to do however, as the great speed of the whale and the savage threshing of the huge flukes prevented a near approach. The captain used an implement known as a spade with the hope of severing the tendons of the huge tail, but was unsuccessful, and the whale swam on with undiminished speed, often rolling as he went, so as to give the flukes a side cutting power to crush his antagonists. Under these circumstances the usual way for the men is to sheer the boat to one side of the whale by taking a bight of the line over one side of the boat. But in this particular battle the bow oarsman had been tugging at the line for an hour but was unable to get the boat in advance of the flukes. A little line might be gained for a brief time but it was soon torn through the hands. The captain was a little hard on his bow oarsman, and hinted at somebody's cowardice. This was too much for the crew and making an extra effort the boat was brought up to the iron in the whale's body, and the captain plied his



THE MASSIVE PART OF THE HEAD OF THE WHALE IS KNOWN TO THE WHALEMEN AS THE CASE. IN WHICH IS A VERY LARGE CAVITY OF CONSIDERABLE DEPTH FILLED WITH A YELLOWISH OILY LIQUID KNOWN AS SPERMACETI. AFTER THE HUGE MASS IS HOISTED WELL UP BEYOND THE VESSEL'S RAIL, THE VALUABLE OIL IS BAILED OUT BY MEANS OF A DEEP AND NARROW BUCKET



THE COURAGE OF THE SPERM-WHALE IS IN PROPORTION TO ITS IMMENSE SIZE AND THE BIG BODY IS SURPRISINGLY AGILE. BOAT AFTER BOAT HAS OFTEN BEEN WRECKED BY THE POWERFUL TAIL AND THE MOUTH—ARMED WITH HUGE TEETH ON THE LOWER JAW, CRUSHES THE SIDES OF A WHALEBOAT LIKE BITS OF PAPER



THE BLANKET OF BLUBBER IS CUT WITH A SHARPENED STEEL IMPLEMENT KNOWN AS A SPADE AND STRONG TACKLE IS EMPLOYED TO HAUL THE STRIPS ABOARD, AND LOWER THEM BELOW TO THE BLUBBER-ROOM

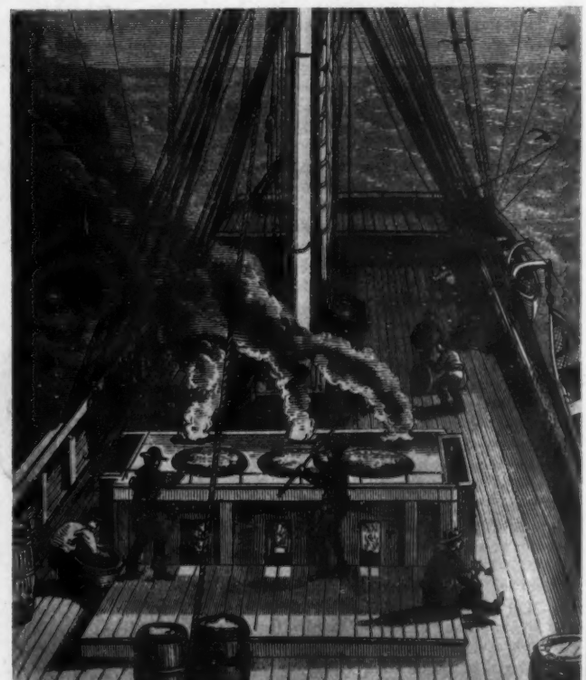
lance time and time again. The brute seemed to bear a charmed life and would not spout blood, and the little jets that came from the lance holes would not bleed a whale to death in a month. Our boat buried her nose in the waves and the bloody spray dashed over us as we raced onward. Now our majestic race horse grew impatient at the captain's prodding, and he milled across our course and we ran plump against his head. "Slack line! Slack line!" roared the captain. "Starn all slack line, and starn!" He turned to step aft, fearing the upward cut of the whale's jaw, when he saw the line fast to the thwart. "For God's sake cut that line!" he shouted, springing forward for a hatchet, but the loosened bight of rope went over the side, as the whale came up under the forward part of the boat and shot the bow clear out of the water.

At this moment the captain and old Ben the harpooner occupied the stern and I was just mad enough to enjoy the expectant look with which the two old whalemen awaited the coming of the flukes. Fortunately for us the blow was delayed a moment, and when the thundering concussion came it cleared our boat by a few feet. The other boats were out of sight and the ship's hull could be dimly seen to leeward. For two hours more the whale ran and fought with redoubled fury. The captain got long darts with the lance but with no effect. Finally the iron drew out and the victorious whale passed from us. It was nightfall when the worn out crew reached the vessel and found that their comrades who had been wrecked were all safe on board. On the next day the green but plucky bow oarsman was told that in fastening the line to the boat he had placed six men within an inch of death. If the whale had gone down, the frail craft and the crew would have been a quarter of a mile under water in less than a minute.

Many thousands of pages could be filled with the adventures of the whalemen. An infuriated whale is a more powerful and terrible creature than the wildest of land animals. His courage is equal to his size and many instances are known in which a sperm-whale, after wrecking many boats, has actually rushed upon the ship, stove in her bow and sunk her. A whole boat or two is usually the smallest cost of an encounter and often the crew are tossed high in air by his monstrous tail. Coming to the water bruised and lacerated, the men are still pursued by the enemy and have to avoid his jaws by diving under or crawling over him until one of the other boats arrives. Whale ships do not carry surgeons and the worst wounds were often unskillfully dressed by the captain who knew even less about surgery than of Latin or Greek. Amputations were performed with carpenter's saws and butcher's knives and wounds bandaged with canvas.

In the pretty cemetery at Sag Harbor, Long Island, there is a marble monument bearing a touching record. It is in the form of a broken ship's mast with an unstranded hawser twisted around the foot and engraved upon it are the names of six captains of whale ships belonging to the old town, all of them under thirty years of age, who died within ten years of each other in encounters with the monsters of the seas. An old whaleman who had escaped death several times used to declare that he only lived "on borrowed time, a monument of God's mercy." Here may also be mentioned the case of Capt. Huntling as an example of a whaleman's endurance. His boat was capsized and rolled over him by a large sperm-whale. When he rose to the surface he was entangled in the line, and struggled to free himself but before he could get clear he was dragged under. A bight of line yet attached to the whale was around his ankle. Drawing himself nearer the whale he drew his sheath knife and managed to cut the cord. When he again came to the surface a boat picked him up, but his ankle was broken and in the presence of his men he set it himself and then resumed his usual duties.

On another occasion a sperm-whale first wrecked two boats and afterward charged at the ship, tearing away the cut-water and the copper sheathing around the bow.



THE OIL-BEARING FLESH OF A SPERM-WHALE—KNOWN AS THE BLUBBER CONTAINS AN AVERAGE OF THREE AND ONE-HALF TONS OF OIL. BIG CHUNKS OF THE FLESH ARE THROWN IN BIG POTS AND THE OIL IS TRIED OUT BY FIRE. TRYING-OUT IS DONE AT NIGHT AND IS A HARD AND DISAGREEABLE DUTY, AND FORMS A PHASE OF WHALING WHICH EVEN THE OLDEST HAND NEVER LEARNS TO RELISH. THE EXCITEMENT OF THE CHASE FURNISHES PLENTY OF SPORT FOR THE GREENHORN, BUT THE TRYING-OUT PROCESS IS DIRTY AND GREASY WORK, AND THE OFFICERS OF THE SHIP DRIVE THE CREW UNRELENTINGLY THAT THE OIL MAY BE BARRELED AS QUICKLY AS POSSIBLE

Several harpoons, lances and bomb-lances were fired into him without effect. During the night the whale remained on the surface in the vicinity of the wrecked boats, and was heard thrashing about. The next day thirty-one bomb lances, each containing half a pound of gunpowder were exploded in him before he yielded. The monster produced 115 barrels of oil, half of which was head matter. Finback whales are even more dangerous than sperm-whales and they often seem 120 feet long. They are very swift and powerful but their blubber is thin and the whalebone scant, and they have always been considered less valuable than others of the species.

After the whale has been killed and is hauled alongside the ship, the cutting-up process is begun. This is surgery on the largest known scale. The immense carcass is brought underneath the hoisting tackle, which consists of two great sheave blocks and a rope 8 inches in circumference running through them. The fall leads to the windlass, near which a number of men stand ready to lend a hand. The rails and bulwarks are removed and two platforms are erected over the ship's side in front of the opening. The whale is brought directly under the tackle, swinging above the platform, upon which the officers are stationed armed with broad-edged tools called spades, which are fitted with sixteen-foot poles. A circular flap is cut from around the whale's eye, and one of the boat steerers, dressed in a rough woolen suit, is secured by a rope fastened around his waist, and is lowered on to the whale's back. This is a dangerous duty in a heavy sea, as the smooth skin of the animal affords a slippery foothold, and the huge blocks and heavy iron hook swings back and forth with the roll of the ship while a score of sharks are nibbling away at the carcass on all sides.

When the hook is inserted the order is given to *haul taut* and *heave away*, and the flap, called the blanket or blubber, is pulled away and up beyond the deck. A second man then cuts an oval plug from it, which is secured by another fall and both parts are afterward lowered into the blubber-room. The first cut is extended to other parts of the body, the head excepted, which is reserved for the last, and the windlass is constantly worked until five hundred or more feet of the blanket have been brought on board. When every bit of the carcass has been stripped of blubber it is turned adrift and floats away, coloring the water by its oozing blood and attracting shoals of sharks and a flock of albatrosses, which holds carnival in the sea and air over the fallen monster.

The head of the whale is one-third the entire length of a sperm-whale and in obtaining the valuable spermaceti which it contains, the whale men divide it into three parts—the *case*, the *junk* and the bone. The *junk* is first hauled on board and stowed away and then the *case* is bailed. The case is the massive part of the head, and is filled with an oily substance of a faint yellow color. The oil-bearing flesh forms about one-third of the mass and in a large whale it has yielded three and a half tons. The case also contains the respiratory canal and a cavity of extraordinary depth filled with oil. An opening is made at one end for the purpose of bailing and it is next hauled up beyond reach of the water. A deep and narrow bucket attached to a line and pulley is then lowered, and brought up full of transparent spermaceti, which has the odor of freshly drawn milk. The sore hands of the crew, bathed in this rich substance, are healed and the greenhorns

WHEN THE BLUBBER HAS BEEN REMOVED THE CARCASS OF THE STRIPPED WHALE IS SET ADRIFT TO FORM A FEAST FOR THE SCHOOLS OF SHARKS AND THE FLOCKS OF GULLS WHICH HOVER IN ITS DRIFTING WAKE

dabble in it with all the satisfaction displayed by children in a mud puddle.

As soon as the case has been emptied it is set adrift and the *try-works* are brought into use. The try-works forms a very necessary equipment of the whaling vessel and it has brought forth much mirth and many gibes by merchantmen and the tars on men-of-war. The works are boilers set in a foundation of brick on the deck and are used for reducing the blubber to oil. When the ship is trying-out the mainyard is backed, the main and top-sails are furled and while the ship drifts in her course the fires are lighted. This is one of the hardest tasks falling to the whaleman's lot and an offensive one. The scene on board is a wierd one with red flame and smoke issuing from the flues and shooting up into the night, bringing the outlines of the masts and rigging into bold relief. The feet of the men slide over the slippery deck at every roll of the ship, and their clothes are wet, blackened with soot and saturated with grease. If the greenhorn has not yet repented of his job, the time of trying-out will surely make him long for the green hills of home. The officers drive the men and with every whale caught the unpleasant drudgery is repeated. The chase is enjoyable sport but the cutting-in and the trying-out are its opposites.

Cruising after sperm and right-whales in the Pacific is a long and tiresome voyage. Usually it lasts for three or four years and there are few incidents to vary the monotony except the excitement of capturing a whale. Calls are made occasionally at South American ports where the sailors find dirt in abundance. When the ship puts in at the volcanic Galapagos, where delicious terrapin is more plentiful than clams on Long Island, the whalemen find a welcome change from the ship's food, which ordinarily consists of salt pork and biscuit. At the evergreen Cocos Islands another delightful port is found, and at Hawaii is found the sailor's land of delight.

A great diversity of opinion existed and still exists among sailormen on the habits of the whale. Many old tars have averred that the number of tails a whale carries depends altogether on the quality of the grog. One of the most interesting peculiarities of the whale is its immense loss of blood in death. The old whalemen all agree that the animal has a large supply in a reservoir, which is brought into use when the general circulation is sapped during a long submergence. This reserved supply is what the whalemen call the *life* of the whale and is the spot sought by the harpoon and lance. When this spot is reached the bloody torrent surcharges the lungs and is expelled through the spout-hole. Suffocation and death follow, but when the wound is only slight the suffering of the creature is much prolonged.

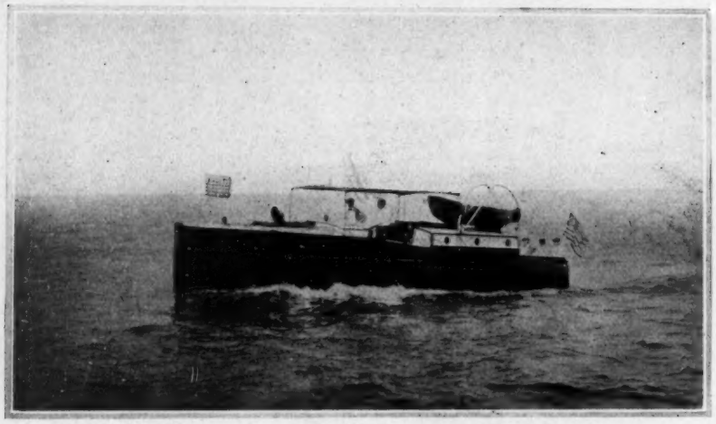
The length of time a whale can remain under the surface is considered by the whaler to greatly exceed that of the time allowed by men of science. Sometimes, during the full of the moon the whales are abundant over the feeding ground and many are taken. This busy season is followed by a period of a few weeks during which none are visible. Vessels are spoken from all points of the compass and when spoken all agree that no whales have been sighted over an area of some six hundred miles. Bull whales often appear as though they have been reposing on the muddy bottom, and off the coast of New Zealand they have been seen with such barnacles on their lower jaws as are found on the ship's bottom.

It has always been a common belief among whalemen that whales have a mysterious power of communicating with each other. Stationed at the mast-heads

(Continued on page 252)

Three Phases of Motor-Yachting and Boats Well Suited to Enjoy the Sport

To Experience in Full the Varied Charms of Cruising, a Fishing Trip and a Pleasant Spin During a Summer Afternoon, It Is Essential That the Boat Be Well Designed for the Use to Which It Is Put



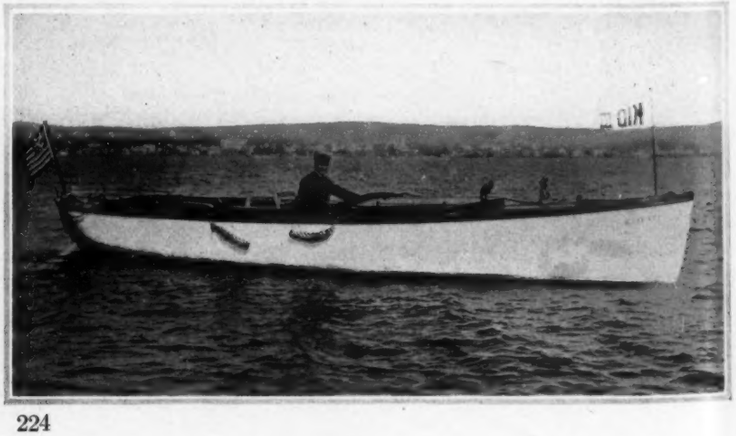
THE 40-FOOTER TWILIGHT MEASURES UP TO THE IDEAL OF MANY YACHTSMEN WHO WANT A COMFORTABLE HOME AFLOAT AND A CRAFT NOT TOO LARGE TO BE EASILY HANDLED BY ONE MAN ON AVERAGE PLEASANT WEATHER CRUISING

WHATEVER branch of Yachting my shipmates may prefer, they will find among the big list of available craft just the type of boat that will meet their specifications and measure up to their idea of what a yacht should be. For day sailing, speed may be considered as one of the biggest if not the chief factor, but for cruising comfortable accommodations are of paramount importance. With a definite idea of the use to which a boat is to be put, and with a little careful planning, the purchaser of a cabin motor yacht will find it possible to secure a craft which will show a fair cruising speed and embody sea-going qualities with comfortable and attractive living quarters. To picture the attractive appearance and neat lines of an up to date motor-yacht of the cruising type we have taken at random two good boats for the purpose of illustration.

Twilight is a motor-yacht which will satisfactorily meet the requirements of the yachtsman who wants a one-man boat for average summer cruising. Of clean and attractive design this 40-footer well evidences the well designed and carefully constructed boats which has long identified the work done by the Matthews Boat Company of Port Clinton, Ohio—a yard which has demonstrated its ability to turn out 110-footers for patrol service in record time. *Twilight* was quite recently completed for Mr. Robert Jarecki of Erie, Pa., and having a beam of 9 feet is a very comfortable and able craft, with sleeping accommodations for four and with every desirable convenience. While the relatively wide beam naturally detracts from the speed. This natty craft is powered with a Model F 4-cylinder Sterling motor of the counterbalanced type, and can travel from Erie to Cleveland at an average speed of 14 miles an hour. By the addition of a cedar dinghy, conveniently hoisted by davits and berthed on the after cabin, a landing may be made at any point on the coast without hunting about for a dock.

IN THE LITTLE MOTOR-DRIVEN SEA-SKIFF THE PLEASURES OF DAY SAILING AND FISHING ARE HAPPILY COMBINED IN AN INEXPENSIVE BOAT

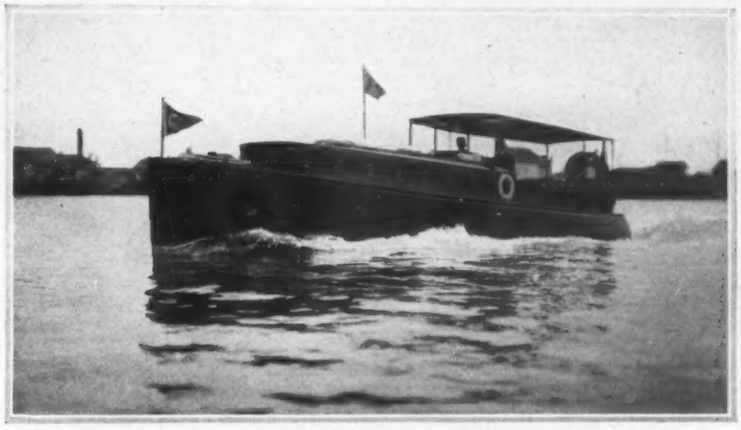
Charlou II is a particularly good example of the modern hunting-cabin type of motor cruiser and is one of the best known boats along the South Jersey coast. This comfortable 37-footer was designed by Bowes & Mower of Philadelphia for Commodore Wm. F. Metzger and built by the Mathais Yacht Building Co. of Camden, N. J. *Charlou II* has proven her ability on many occasions by figuring prominently in association races for the past several years, although her 45-horse power Sterling motor is not of the high speed type, but designed to turn at 800 revolutions a minute. But the motor is powerful enough to swing a blade of stiff pitch and a speed of 17 miles an hour is attained, which has proven sufficiently fast to capture a number of prizes. As the photograph well shows, this staunch little cruiser was primarily designed for comfort and is provided with a roomy cabin forward and a spacious cockpit aft.



OF THE MANY FORMS OF MOTOR-RUNABOUTS THE PICTURED CRAFT OF THE FAMILY TYPE, IS THE CHOICE OF MANY YACHTSMEN WHO DESIRE A BOAT THAT IS CAPABLE OF FAIR SPEED AND PROVIDED WITH A ROOMY AND COMFORTABLE COCKPIT

Stella of our picture is a 26-foot sea-skiff owned by Mr. J. H. Kennedy of West Palm Beach, Fla., and built by Clive Merchant. Mr. Kennedy is a sportsman and an ardent disciple of Isaak Walton and following the lure of the rod he finds in this handy little craft an able boat in which to travel to and from the many good fishing grounds which are so abundant in southern waters. As much fishing is done in deep water *Stella* has been especially built for offshore trips and having a beam of 7 ft. 6 in. is a remarkably stable and seaworthy craft, and the 20 H. P. Sterling motor reels off 12 miles an hour.

Kid III is an attractive illustration of a sensible and convenient 31-foot family runabout in which the pleasure of day sailing may be indulged in with a fair amount of speed and solid comfort. There are a great many yachtsmen who are fond of motor-driven craft but who are not ambitious to own a high speed boat. The old days when rowing boats and canoes and a basket lunch formed the medium of an enjoyable day on the water, are still fondly remembered by many outdoor loving people, and this type of medium speed boat will appeal to them because it well fulfills their requirements. *Kid III* is the property of M. Nelson K. Barnes of Chicago and was built for him by The Atlantic Company. As this picture indicates, the equipment is complete from stem to stern, including comfortable wicker chairs in a roomy cockpit. The motor is installed amidships under a hinged hatch and from the driver's seat the 17-25 H. P. Sterling motor is electrically started and a moderate speed of 15 miles an hour is easily maintained, without annoying vibration and noise.



THE TRUNK-CABIN TYPE OF MOTOR CRUISER HAS MANY FRIENDS, AND IN MODERN CONSTRUCTION, THE ADVANTAGES OF THE RAISED-DECK HOUSE ARE WELL COMBINED WITH THE ROOMY FORE DECK AND AFTER COCKPIT OF THE OLDER FORM OF CABIN

A Few Good Books to Read

A Little List with a Few Informative Books and a Volume or Two of Worth While Fiction

THOROUGHGOOD reached the 6-inch battery breathless and stopped opposite the after gun.

"They're out, lads," he said grimly. "Give 'em hell this time. Clear and close up round your guns—smartly then, my hearties."

From the other side of the deck came the voice of Tweedledee giving orders to his battery, raised above the clatter of the ammunition hoists, the thud of projectiles as they were placed in the rear of each gun, the snap and clog of the breech as the guns were loaded.

Ultimate victory no man doubted; death might sweep, swift and shattering along those electric-lit enclosed spaces where they stood waiting; the great ship was being driven headlong by unseen forces towards an unseen foe. But of that foe, none of the hundreds of men between decks save the straining gunlayers with their eyes at the sighting telescopes would ever catch a single glimpse.

The silence was riven by a roaring concussion that served to shake the framework of the ship. The great turret guns on the upper deck had opened fire with a salvo, and, as if released by the explosion, a burst of frantic cheering leaped from every throat. The Battle-Fleet action had begun.

A shred of fog lifted to disclose a German battleship, near and quite distinct, and listing slowly over with her guns pointing upwards like the fingers of a distraught hand, and as she sank the mist shut down again. In a darkened corner of a gun turret men were groaning and dying. The breech of one of the guns was open and Morton was lying limply over the huge breech-block. The machinery was smashed and twisted, and mixed up with it were dead men and bits of men.

The Fleet Surgeon, splashed with red to the elbows, glanced up and saw a strange figure. It was Mouldy Jakes, his scalp torn so that a red triangular patch hung over one eye. Over his shoulder hung a limp form, as he stood swaying with hand against the ladder rail.

"Thought I'd better bring him," he gasped, "Turret's knocked to hell. . . He's still alive, but he's broken all to bits inside. . . . I can feel him. . . . Morton, snottie of my turret." The surgeon relieved him of his burden and Mouldy sat down, and began to whimper like a child. "It's my hand." he said plaintively, and extended a trembling, shattered palm. "I've only just noticed it."

These few paragraphs from *The Long Trick*, a well written and virile story of life and adventure aboard the English Battle-fleet, are but fragments of the many interesting chapters found in the book—a story of the sea from the fascinating angle of one aboard a fighting ship, narrating thrilling episodes which many American sailors will without doubt soon experience before the crafty Hun is swept clear of the seas.

The Long Trick is written by "Bartimeus" and published by The Geo. H. Doran Co., at 38 West 32nd St., N. Y. City.

(Continued on page 246)

THE CLUB GROUNDS ARE SPACIOUS AND LAID OUT WITH CHARMING PATHS AND DRIVEWAYS

Motor-Yacht Racing at Oneida Lake

The Enthusiastic Devotees of Motor-Yacht Racing are Very Certain to Find Plenty of Excitement and Entertainment at the Annual Regatta of the International Motor-Boat Racing Association This Season

THE joy of handling a high-speed motor-yacht appeals to a large number of sportsmen who are fond of the water and find recreation in the excitement of piloting a fast driven craft. And it is exhilarating sport to sit at the wheel of a high powered boat and opening the throttle to the last notch, set the pulsating engine racing until the rhythmic purr of the perfectly running machine resolves into a vigorous clatter of swift operated valves as the slender craft trembles and vibrates like a sensitive living thing to rush through the water with jets of flame and smoke spouting from the open exhausts.

Last year the motor boat races held at the Thousand Islands attracted a large and enthusiastic following of yachtsmen and history bids fair to repeat itself again this season at the annual regatta which will be held under the auspices of the Oneida Lake Yacht Club at Oneida Lake during the second week in July. From plans that are fast maturing there is every reason to believe that lovers of motor-yacht racing will have an opportunity to see some of the speediest racing craft in the country. That there will be between fifty and sixty of the fastest boats in the East is well assured and there is a possibility that some seventy-five boats will be on hand for the four racing days on July 10th to 14th. As boats will be entered in the various classes according to horse power rating, and the races will be held over ten and twenty-mile courses, with prizes amounting to $2,500 for the winners, there is good reason to anticipate a long list of entries.

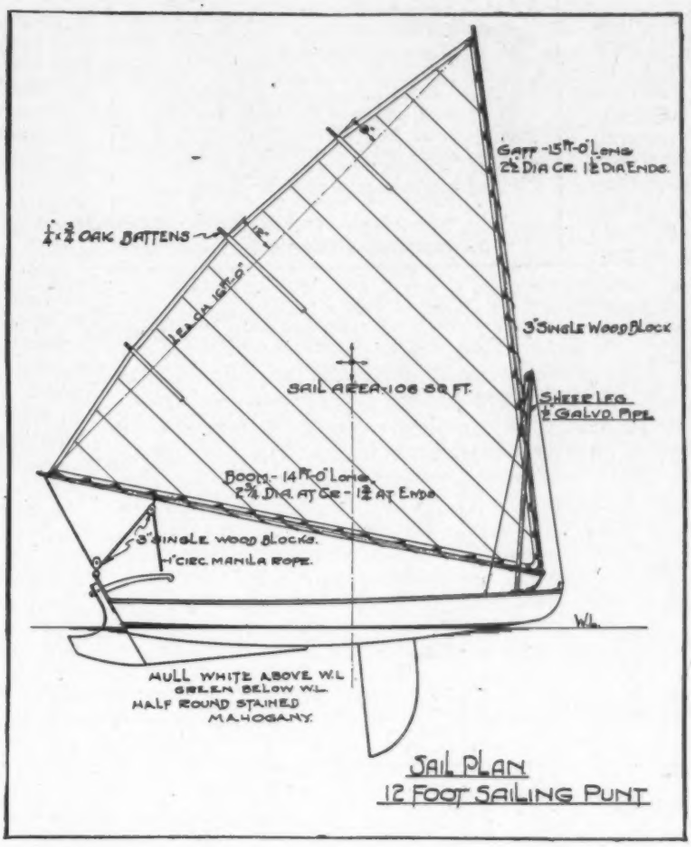
This is the first time that the races have been scheduled for Oneida, the regatta being held for the past few years at the Thousand Islands. Officials of the Association who have looked over the course off Lewis Point are delighted with the course and declare that it is an ideal spot for the big races. Through the enthusiastic efforts of the president, Geo. W. Boyce and other prominent members, the Oneida Club has recently added many new members and while the larger number are residents of Syracuse, Utica and Rochester, the club is admitting members from all localities within striking distance of the lake, so that the club venture may prove a big success. The club now has a membership of 500 which includes many prominent business and professional men and officers are looking forward to a membership of 700 before the race is pulled off.

To provide an attractive and comfortable home for the yachtsmen, plans are under way for extensive improvements in the club house, and the grounds have been relaid with charming bridle paths and driveways. The rustic-tavern dining room where so many jolly parties have been held in the past, will be considerably enlarged to provide a seating capacity of over 250, and a large and well equipped garage has been erected, while a new boat house is now being erected on the east shore of the lake. It is now planned to operate an auto-bus line between Oneida, Canastota and Lewis Point, with a boat service connecting with Sylvan Beach.

While the motor-boat races will form the gala event, other sporting meets will be staged on the broad reach of water in front of the club house. It is as yet too early to announce plans with any degree of certainty but it is the intention of the club to balance the racing programme by holding sailing and canoe races in addition to the main event.

THE navy needs spy glasses, binoculars—yours in the hands of a transport's lookout may be the means of spotting an enemy periscope before the periscope spots the transport. You know what that means—good-bye transport, and your son, or someone's son.

Send glasses to Branch Hydrographic Office, 78-80 Broad St., New York, or to Hon. Franklin D. Roosevelt, Washington, D. C.



How to Build a 17-Foot Sailing Punt

A Fast and Easily Constructed Boat of Original Design With All Details Shown on the Plans and With Hints on How to Build the Craft by the Designer

By SAMUEL S. RABL

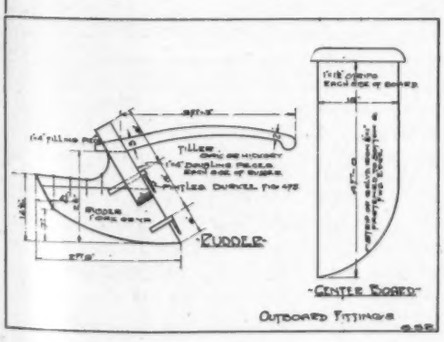
A FRESH March wind was blowing across the bay, kicking up the first big white-caps we had seen for many days. Gulls floated by in their persistent search for food and a kettle was singing a merry tune on the Shipmate range at one end of the shanty. I was watching the wide vista of wind swept water when a knock at the door interrupted my wandering thoughts and in came my old friend, Tommy Jones.

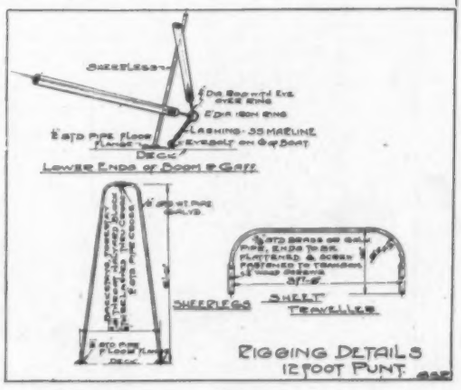
"Say Cap'n Sam, Bill Smith is going to build that canoe you published in March YACHTING. You know what that means," he finished with a grin.

"Meaning what?" I inquired.

"That my Kennebec won't be worth a cent, and she would never look at me if he and Lucy ever passed us. You promised some day to design a boat similar to the Bugeye, that would sail circles around our canoes. Of course the Bugeye is a fast boat, but don't forget there is one craft on this bay that will put one over the Bugeye, and that little ship is the old scow-sloops that come down from Port Deposit with crushed rock and granite. Cap, that's the kind of a boat I crave. Let's go at it."

And we did get busy immediately. All afternoon we hung over my drawing board, making rough sketches of the sails and hull. After Tom's departure I worked on late into the night, for I was bent on a pleasure, which next to





holding a tiller in a stiff breeze, is my greatest recreation.

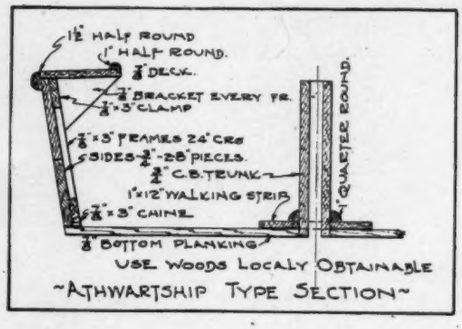
The hull of the scow-sloop which is almost a box, was fined down to the trim lines shown on the plans. The sails, which on a scow-sloop consists of jib, staysail, main and topsails, were reduced to one sail as given. Knowing friend Tom's fondness for frequent sailing in creeks and inlets where the trolley bridges will not admit a boat higher than seven feet above the waterline, I finally evolved the idea of shear legs that would allow passage under any bridge, without dismasting the boat.

When Tom returned the next day and looked over the finished plans he gave them his unqualified O. K.

"Cap, the plans are all right but I want to know how to work from them. It's easy enough to write on a plan 'Rudder to be 1-inch oak or yellow pine,' but quite a different thing to make it."

"'Tis easy enough, Tom," I explained, "you have had some experience with tools, and the drawings are simply pictures of the finished work with dimensions of the correct size. Come over here, sit down and open your ears to the simplicity of it."

"First of all take your old chisel to a grinder and remove all evidence of their having been used to cut tenpenny nails. Do likewise with your old jackplane—a



~ATHWARTSHIP TYPE SECTION~

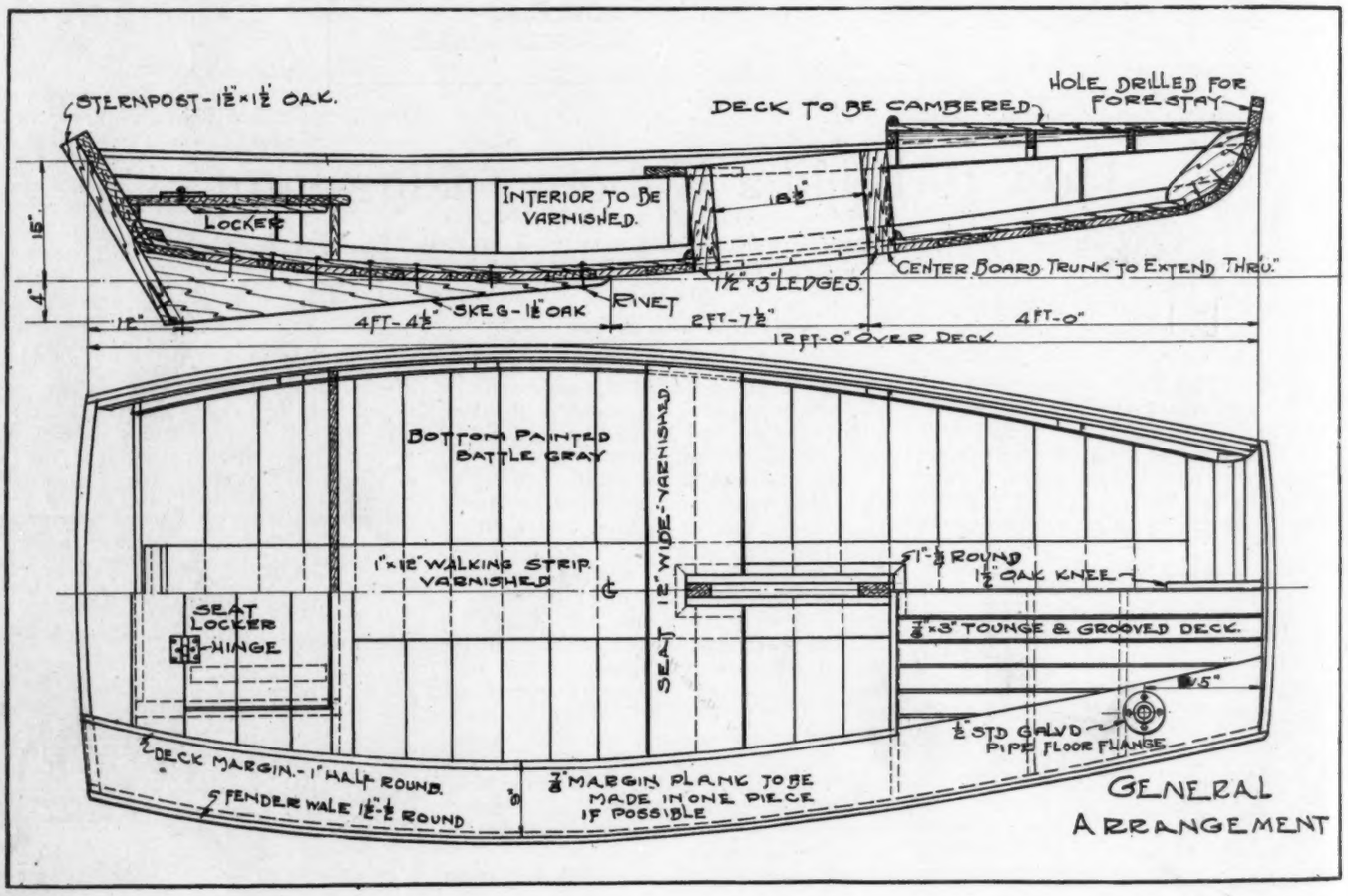
plane by the way which helped to smooth down the rough spots on many an old Baltimore Clipper. Put your saws in shape also and you are well prepared to begin.

"When all your lumber arrives, cut out the side planks as indicated in the drawings, taking care to accurately measure each point. To prevent splitting, drill holes for all screws. Get out the bow cap and the transom in a like manner. When these pieces are finished assemble the sides, using galvanized nails or screws to fasten the clamp, frames and chines. In doing this you will note that the top of the board is straight, but when the planks are bent this line assumes a curved form for the sheer of the boat. The mould is next constructed of any old lumber at hand, and is only needed to give the shape of the boat.

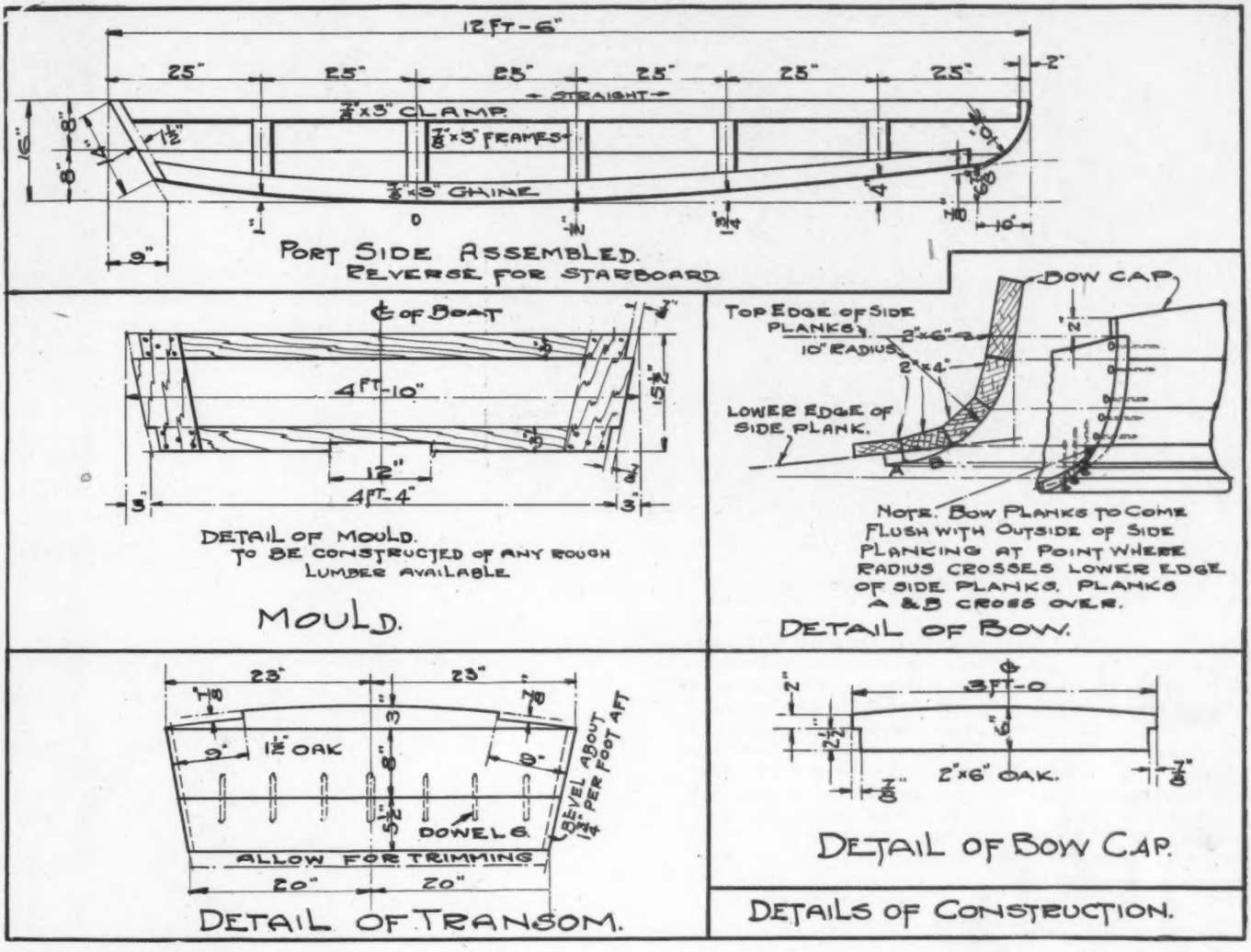
Having finished the side planking and the ends, these are now assembled. Fasten the transom to the side planks with 3-inch galvanized wood screws, and spring the side planks apart to receive the mould. The mould is tacked with short nails to the forward edge of the second frame from the transom. By fastening a rope over the bow ends to form a strap and inserting a stick between the ropes, a kind of tourniquet is easily made to draw the bow together.

"The bow-cap is now fastened in place and the bow built up of 2-in. by 4-in. timbers as shown in the drawings. You will note that the radius of the bow does not come tangent to the bottom of the side planks, but to a point ⅞-in. below it. This is necessary to allow for the thickness of the bottom planking.

"The planking of the bottom is now to be done. To do this lay a straight-edge across the bottom of the boat, and bevel the sides to fit it. The planking at the stem is next put on. Two planks should be put on and the walking-strip or keelson inserted under them. This strip is bent across the mould in a slot provided for it. Fasten this at the bow by nailing on two of the bow planks. By laying a strip of lampwicking soaked in white lead between the bottom and the side planks, a perfectly tight joint is made.



GENERAL ARRANGEMENT



Go ahead with the planking, leaving about 1/16 of an inch between each plank for caulking. Care should be taken in planking near the centerboard, so that no nails will come in the slot.

"After the planking is finished the centerboard box is made and fitted as indicated in the general plan of the boat.

"The deck and interior is now worked out. Individual taste will suggest the best arrangement, and a coaming should be fitted around the cockpit if the boat is to be sailed in rough water.

"Rudder and centerboard are now made and the boat is caulked and painted. For the spars spruce or white pine should be used. Do not use yellow pine, for it is too heavy and will crack and splinter under the strain. All sail fittings are made from standard pipe and the stays should be 3/16 or ¼-in. wire rope.

"The sail may be made by the builder by first laying the shape out on the floor, and the material may be heavy twilled muslin or light drill canvas of 5 to 6-ounce weight. An allowance of 6 inches should be made on all measurements to take care of the stretching and the material may be sewed stoutly together on an ordinary sewing machine.

The Dinghy Problem

ONE of the established drawbacks to the pleasure of yachting has been and still is the difficulty of getting a dinghy or tender that will fill the three essential requirements.

Easy to row,
Easy to tow,
Easy to take aboard in a blow.

Captain Day, of Thos. Fleming Day, Inc., who is an old hand and has been hard aback with this proposition for years is endeavoring to solve it by keeping in stock as many types of small boats as he can lay hands on—flat, half-round and round bottoms of all lengths and shapes. The Captain says, "If you want a tender, you can have it in 24 hours. You won't have to wait until some overworked builder gets it out for you about two months after ordering. These boats are built for salt water and I can guarantee from personal experience their working qualities."

Fish Oil for Motor Fuel

EXPERIMENTS made in Denmark with motors for fishing boats to determine the practicability of using fish oils for operating them appear to have been so successful, according to Commercial Attache I. W. Thompson, that it may be possible for the fishermen who now have boats equipped with kerosene motors to make some slight changes and use this kind of fuel. It is even proposed, he says, that fishermen may make their own cod-liver oil while at sea for use in their motors.

When the experiments were called to the attention of the manager of a Copenhagen firm, which makes Diesel engines, for the purpose of getting his opinion regarding them, he replied to Mr. Thompson: "I take pleasure in confirming that the fish oil for Diesel motors will be excellent to use as a moving power. Further I beg to say that, no doubt, the said oil will also be practicable for smaller fishing boats where the motors do not work according to the principle of explosive motors."

GOING A-LOBST
JERRY AND

PHOTOGRAPHS BY

THE sea in every phase of weather, be it Jerry. Serving his apprenticeship as Banks off Newfoundland, Cap. has gleaned wind and wave has given birth to an honest books, because Cap. is weak on euphonious

"WHINEVER TH' STORM BREAKS AN' WHIPS TH' SEA INTER A WHITE CAPPED CHURN O' FURY, 'TIS GLAD I IS TO PUT ME BRAWN AGIN THE HEAVE O' THE DEEP. YE NIVER KIN FEEL THE JOY OF BEIN' A MAN TILL YE ARE AT GRIPS WITH NATUR. 'COURSE YE MAY LOSE OR WIN, BUT IT'S TH' FIGHTIN' CHANCE TH' MAN MUST TAKE TO GIT TH' SATISFACTION. AN' WHIN THE COMBERS ROLL IN ON ME BEACH LIKE THIS, I ALLUS WANTS TO GIT OUT AND WRASSLE WITH TH' SURGE, BUT THE MISSUS ALLOWS I ARTER STAY TO HUM AND MIND ME POTS. THE LOBBY IS SURE A POPULAR CREATURE MATE, BUT WE IS EATIN' 'EM FASTER THEN THEY GROWS. LOBBIES ARE BIG SELLERS AND YE SURE MUST LOOK ARTER YE POTS. YE CAN'T DO NOTHIN' WHIN THE COMBERS ROLLS IN WITH THE SLAP OF A GALE BEHIN' 'EM, BUT YE WANTS TO GIT OUT A-HUSTLIN SOON ARTER THE BLOW AN' HAUL YE POTS, OR YE WON'T FIND SOME OF 'EM AGIN."

"'TIS TH' NATUR FER SOME FOLKS TH' HANKER ARTER WHAT TH' OTHER FELLER'S GOT, AND WHIN I SEES A FELLER PULLIN' ME POTS, I ALLUS STEPS OUT O' SIGHT O' THE MISSUS, FOR THEM ARE THE TIMES YE MIGHT GIT MAD, AND I HATES TO HAVE ME WOMAN AROUN WHIN I CLEARS FER ACTION."

"'TISN'T BIG BIZNESS I KNOWS YIT I KALCULATE TH' WHOLESOME BREATHIN OF SALTY AIR AN' PLENTY O' SUN MAKES A MAN PURTY FIT TO INJOY LIFE AS IT COMES. BOATIN' AND FISHIN' FER A LIVIN' AIN'T SO VERY SOFT, YIT I LIKES IT ARTER FOLLERIN TH' SEA ALL ME LIFE. 'TIS TH' VARIETY AN' TH' INFLOOENCE O' TH' WATER WHAT HOLDS A FELLER TO A BOAT. TH' TRAININ' ACOMIN' FROM HANDLIN' A BOAT IS PURTY GOOD SCHOOLIN' FER THE LADS AND LASSIES. A FAIR HULL AND A GOOD INGINE IS A GOOD OUTFIT, BUT NOTHIN' IS BETTER'N A SAILIN' CRAFT FER DEVELOPIN' JUDGEMENT AND SAILOR SENSE."

ERING WITH CAPTAIN A CAMERA

WILLIAM McDOWELL

sunlit fair or cloud banked foul, is likened as an old friend by Captain handy-boy on a fishing craft that sailed from Gloucester to the Grand much that is interesting from his calling, and the eternal struggle with philosophy—a philosophy differing from that which we read about in phrase and theory and strong on doing the right thing with a cheerful heart.

"BOATS BE GOOD FRIENDS TO A MAN WHO LIKES 'EM, AN' WHIN YE KNOWS TH' WHIMS O' TH' LITTLE CRAFT YE KIN FIGUR YE-SELF A SAILOR. I LIKES TH' CAT-BOAT, FER SHE'S A HEADY CRAFT WITH PLENTY O' PEP."

"WHIN YE HAVE A BUNCH O' POTS PILED HIGH ON TH' SHARPIE, 'TIS A MATTER OF DELICATE BALANCE TO KEEP YERSELF RIGHT SIDE UP. I IS AN OLD HAN' AT TH' BIZNESS YIT I TURNS TURTLE ONCE AN AWHILE. NO HARMS DID TO GIT WET YIT I HATES TO STRAITEN OUT ME GEAR ARTER A CAPSIZE. 'TIS EASY ERNOUGH TO PUT 'EM OVER BUT YER WORK COMES WHIN YE PULLS TH' POTS. I DON'T SEE NO SENSE IN WORKIN' HARDER'N YE HAVE TO, SO I RIGS UP A TRAWL-DAVIT AND SAVES ME BACK BY HISTIN TH' POTS WITH A GYPSEY HEAD BELTED TO ME INGINE."

"SOME OF TH' SUMMER FOLKS THINKS ME AND THE MISSUS IS MIGHTY CARELESS AND LAZY WHIN WE LEAVES TH' TOOLS OF ME TRADE ON THE FRONT LAWN, AN' PLANTS TH' FLOWERS AT 'TOTHER SIDE O' TH' HOUSE. BUT WE IS SEAFARIN' FOLKS AN' WHIN I STACK ME POTS AT TH' HANDY SPOT ON TH' BANK ABOVE TH' BEACH, 'TIS A SAVING IN TIME, AN' TH' FLOWERS BLOOM BEST IN TH' LEE O' TH' HOUSE. AN' AS TH' LOBBIES MUST BE GOT FER TH' FOLKS WHAT LIKES 'EM, AN' ME BOATS HAS TO BE HAULED OUT AN' PAINTED WHINEVER THEY NEEDS IT, ME HOUSE AN' LOT IS ROUGH AND READY LIKE ALL OF US FISHIN' FOLKS. ALLUS THERE BE POTS TO BALLAST AND MEND, FOR TH' TIDE IN THESE PARTS USES 'EM UP PURTY FAST AN' TH' WORMS EAT UP TH' WOOD IF YE DON'T DRY 'EM OUT PURTY OFTEN."

Piering, One of the Joys of Motor Patrolers

Submarines Are Not the Only Things to Chase

By the PHILOSOPHER

1. Now in a certain place there stretched out into the sea a structure, and it was called a Pier. And the people of the place walked thereon that the winds of the sea and the ozone thereof might blow upon them, and that their clothes might not pass unheeded.
2. And when the winds were light the maidens did walk in great pomp,

and did bow unto the young men, who hastened to uncover their heads in great reverence.

3. Yet at other times the wind rose in its wrath and did toss the draperies of the maidens in many directions. And the young men gathered together and many things were revealed unto them.
4. And Mrs. Grundy, who missed nothing, did sit on the Pier, and her dog

Floe sat at her feet. And all men feared her.

5. And as the young men and maidens walked on the Pier, behold a thing appeared on the distant sea, and it traveled on the surface of the sea amid a great turmoil of waves and smoke.
6. And having approached right unto the Pier, it cast anchor.

7. And the maidens gathered together in great fear and said unto the young men, "What manner of thing is this which has come among us?"
8. But the young men raised their voices and said, "Assuredly this thing is a Patrol-boat. Have a care, oh maidens, for behold we know the men of these boats, and they are bad men."
9. And the maidens said among themselves, "We'll watchit."
10. And Mrs. Grundy, who missed nothing, dropped a stitch.
11. Now the Captain of the Patrol-boat had orders to watch the coasts for evil doers and those who broke the laws, and he cast his eye on the Pier.
12. And he said to himself, "There is much work to be done here, my brethren, oh yes!" And having disguised himself in Number One's he called his men unto him and pushed for the beach.
13. And with him was his dog "Satan."
14. Now the Captain of the boat was brown with the sun, and he had no hair on his face, yet his eyes moved quickly in his head, so that he missed but little.
15. And his dog, which was called Satan, was wonderfully dirty, so that no

man could tell what manner of dog he was, and the hair of his head stood out in great disorder, and other dogs feared him.

16. And Mrs. Grundy, who missed nothing, called Floe unto her, and hid her privily under her skirts.
17. Now among the maidens of the Pier was one more beautiful than all

the others. And all the young men did homage to her, and clustered round her, even like women round a bonnet shop.

18. And the Captain of the Patrol-boat, whose eyes moved quickly in his head, saw this, and being a man of great understanding in these matters, he looked the other way.

19. And his dog Satan, that was wonderfully dirty, saw it too. But he also looked the other way, and catching a fly that passed nigh unto him, swallowed it.

20. And Mrs. Grundy, who missed nothing, dropped another stitch.

21. But the maiden who was more beautiful than all the others was filled with anger. And she said, "This man shall bow down to me even as other men, and he shall be my slave and I will wipe my shoes on him."

22. And having arranged her hat and her hair and shaken her raiment she walked in front of the Captain of the Patrol-boat. And the Captain spoke with Satan his dog and stroked his grubby head.

23. Now as the maiden walked in front of the Captain she looked not in his direction, but at the sky and the sea, and she swung her arms and body in great unconcern, and her nose was high in the air.

24. And Mrs. Grundy, who missed nothing, sighed for her lost youth.

25. Now Satan, having nothing more to do, lifted his nose and sniffed the air, and as he sniffed he cocked one dirty ear, for behold the scent of another dog came to him and he could in no wise see it. And he left the Captain that he might inquire into this matter.

26. And he sniffed to the right and he sniffed to the left and sought in many places, but always came he closer to Mrs. Grundy.

27. Now the maiden who was more beautiful than any of the others, having walked before the Captain of the Patrol-boat many times and nothing doing, sat her down nigh unto Mrs. Grundy, and fell into talk with her.

28. And she laughed as she talked and made merry, but looked not once at the Captain, so that he knew it was "orlright."

29. And, behold, Satan stood behind Mrs.

Grundy's chair, and he cogitated with his head on one side, saying unto himself, "Unless my nose deceives me, there is a dog concealed hereabouts, and perchance it is a 'dachshound.'"

30. And he argued with himself, saying: "There are two ways of settling this matter: Like Asquith, I can *wait* and see, or, like Beatty, I can *go* and see.

31. But waiting is a slow job and peradventure the Captain may 'click' any moment; whereas if I but go and see the thing is settled."

32. And he girt up his loins.

33. Now Mrs. Grundy, who missed nothing, was showing the maiden how she did it, saying unto her, "Yes, dear!

Two plain, two purl, slip one, knit one——"

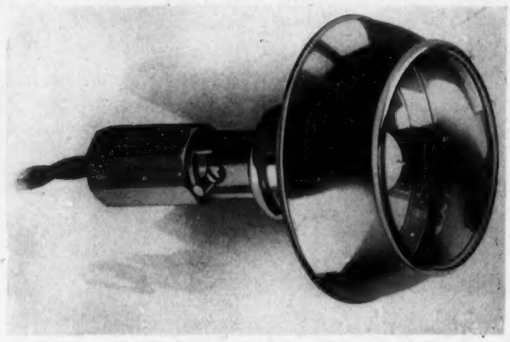
34. And as she spoke the wrath of Satan struck her, and hurled her chair

from beneath her, so that she rested on the ground only in one place and the rest of her was it not in the air?

35. And the Captain of the Patrol-boat seeing what his dog had done, leapt up in great concern, saying "That's tornit." And having turned Mrs.

(*Continued on page 253*)

YACHTING'S MARKET PLACE



It is the object of this page to extend to every subscriber and reader, Yachting's personal opinion relative to the merits of the wares reviewed from month to month, and to extend Yachting's service to all inquiries and requests to purchase. Merit is the only standard of judgment, and nothing can pass stamped with the A-1 Seal unless it has been well tested and proven to serve its purpose in fullest measure.

THE CELL-BEAM LIGHT

IS a many-use light which will prove a handy article of equipment on the motor-yacht, in as much as this compact and neat portable lamp not only serves as a spot light for use about the engine and inside the cabin but a light sufficiently powerful to make it of practical value when used as a searchlight in locating harbors and for picking up the buoy at the moorings.

The Cell-Beam Light is fitted with a 6-volt Nitrogen bulb of 30 candle power, and operates on the ordinary storage battery or on a set of six dry cells. As the illustration of this unique little lamp shows, the bulb is housed in a special reflecting hood which serves to protect the glass and at the same time concentrates the light in a beam extending 500 feet, while objects at close range are illuminated by a powerful diffused glow without the annoying glare of the usual hand lamp.

To the motor-yachtsman who has long known the limitations of the average search-light and the awkwardness in handling it, the Cell-Beam Lamp will fill a very definite need. This lamp weighs but one pound, is serviceable, finished in nickel plate and five feet of flexible cord and a special hanging clip are supplied with it. The Cell-Beam Corp. at 501 Fifth Ave., N. Y. City, are selling this unique lamp with the understanding that it may be tried out for ten days, and if not found satisfactory its purchase price will be promptly refunded in exchange for the lamp.

ELASTIC PAINT

PAINT! Yes, and seam composition. These are always of interest to yachtsmen for once a year, at least, the question arises what kind shall be used?

Because most yachts are planked with wood or decked with wood, and as wood is prone to contract and expand, an ideal paint for bottom or sides or deck should be one that has the good grace to contract and expand with it.

There is one kind of paint that does this—H. B. Fred Kuhls' Elastic Paint—for bottoms; it's anti-fouling,—and for topsides, either flat or gloss elastic white. And for seams there is Kuhls' elastic seam composition.

THE AIR DRIVE

IN those places where water is spread out wide and covers great distances but unfortunately flows mighty shallow—and there are many such places—mechanical propulsion of boats has, until the last few years, been accomplished only by the stern paddle-wheel and tunnelled propeller—but even these at their best are inadequate when snags, rocks, shelving sands, or mud cuts the water's depth to inches—so when the water's low the boats don't go—But wait, some of them do, and this is how

The aerial propeller, that whirling impeller, if properly installed and driven will shove any kind of shallow draft boat, light or heavy, large or small over water less than knee deep, and propel it at a fair speed, and efficiently.

One concern has been building outfits of this description for years and they, The Kemp Machine Company, have developed an air drive unit power plant that is suitable for driving a 5-ton barge at a speed of seven miles an hour. In this plant a Model D 20-24 H. P. motor revolves a 7-ft. diameter by 3 ft. 6 in. pitch propeller through bevelled gearing which is well lubricated and nicely enclosed within a metal housing, thus the weight of the motor is kept low while the propeller is sufficiently high to be effective.

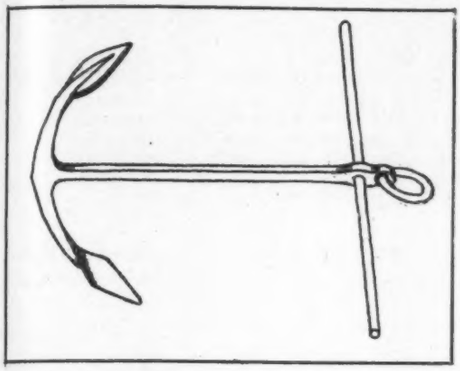
If you are interested in any of the meritorious articles described on this page, or in any article of yachting merchandise whatsoever, we want you to feel free to write us about it.

Every article illustrated or described on this page has YACHTING'S A-1 Seal

A Few Hints on Anchors and Cables

In Which the Old Hand at Cruising Gives a Few Practical Suggestions Gleaned from the Log of a Long Cruising Experience On the Type of Anchor to Select and the Size Best Proportioned for Different Crafts

By STILLMAN TAYLOR



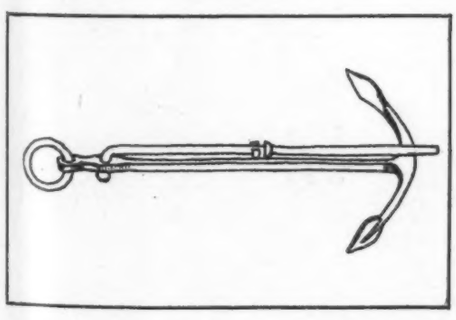
THE STOCK-ANCHOR WITH FAST STOCK IS A COMMONLY USED FORM ON SHIPS AND COASTING SAILING VESSELS, WHERE THE ANCHOR IS ALWAYS KEPT ON THE BOWS, BUT IT IS TOO BULKY IN FORM FOR YACHT USE

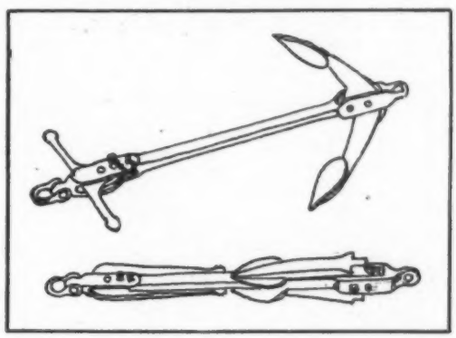
SINCE the question of an anchor is an item of importance and as there are many kinds of good anchors on the market, the yachtsman will have no trouble to find just the kind to meet his requirements. The common stock anchor is the oldest form and for general use is generally considered the best. In referring to the several parts of an anchor, the sailor designates them thus:—The *shank* is the central shaft, from the lower end of which projects two curved arms, the ends of which are broadened out to form the *flukes*. Through a hole in the upper end of the shank and at right angles to it, is a rod of iron known as the *stock*. In the old days the stock was made of wood and rigidly attached to the shank. This type of anchor is occasionally seen on old craft, but the yacht anchor of to-day is provided with an iron stock having a knob at one end and with one half section curved so that the bar may slide through the hole in the shank and fold back upon it for stowing away. This form of anchor may be obtained in any size and weight desired from the little 4-pounder all the way up to the anchor of several hundred pounds weight. The smaller sizes of this type are usually called kedge anchors.

The folding anchor is a very useful form and is a much used type and because of its compactness is the best anchor to use on the motor-yacht when the skipper prefers to carry a heavy anchor below rather than on deck. In this type both arms fold up against the shank when not in use and both ends of the stock fold down against the shank and are held in either open or closed positions by means of a pin. Folding anchors may be had in weights from 4 pounds up to 125 pounds.

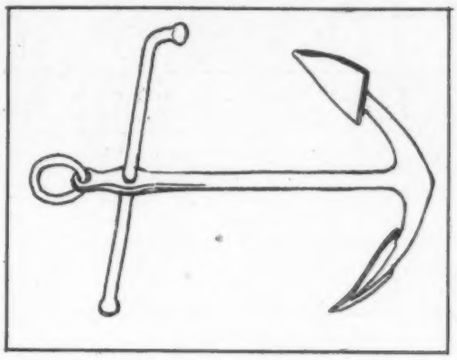
Of the stockless anchors there are several forms but all are similar in that they embrace the good points of compactness with good holding power. The stockless anchors are less likely to foul than the stock type and while convenient and much used on small sail and motor craft, this form of anchor is especially suited for use on the larger boats fitted with hawse pipes, through which the shank is pulled to leave only the flat flukes projecting outside. Stockless anchors may be had in any weights, ranging from 5 pounds all the way up to the huge anchors of several tons weight used in mooring the liner and the battleship.

WHEN THE BAR OF THE REGULATION STOCK ANCHOR IS UNSHIPPED AND LAID ALONG THE SHANK, IT IS MORE EASILY STOWED AWAY





A FOLDING-ANCHOR OF THE STOCK TYPE IS A GOOD AND POPULAR ANCHOR WHICH POSSESSES GOOD HOLDING POWER, YET MAY BE COMPACTLY STOWED AWAY WHEN FOLDED

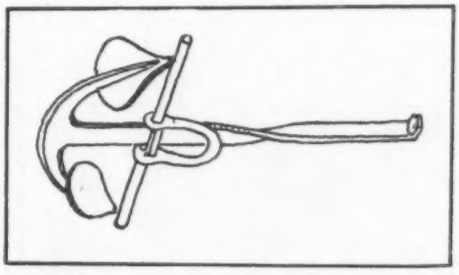


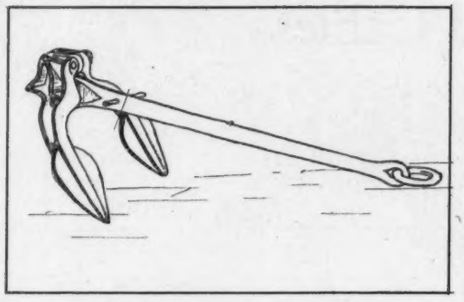
WHEN FITTED WITH A LOOSE STOCK, THE CURVED BAR SLIPS THROUGH THE EYE OF THE SHANK WHEN UNSHIPPED AND IS HELD RIGIDLY EXTENDED BY MEANS OF A SLOTTED KEY

The grapnel is a small anchor with four or five arms or flukes radiating from the central shank. This form of anchor is useful when fishing from small boats and for making a temporary anchorage during fair weather. The common or rigid form of grapnel is made in some fourteen sizes, ranging from 3 pounds up to 25 pounds weight. There is also a patent folding anchor of the grapnel type on the market, in which the four flukes are hinged to the crown and fold back to the shank—opening and closing like the ribs of an umbrella. This is a particularly good anchor for the small yacht and may be had in various weights from 4 to 57 pounds.

Every cruising craft, whether motor or sail, should be equipped with at least two anchors, one being of medium weight for mooring the boat in ordinary weather, and the second a storm anchor heavy enough to hold the boat in the heaviest gale. A third

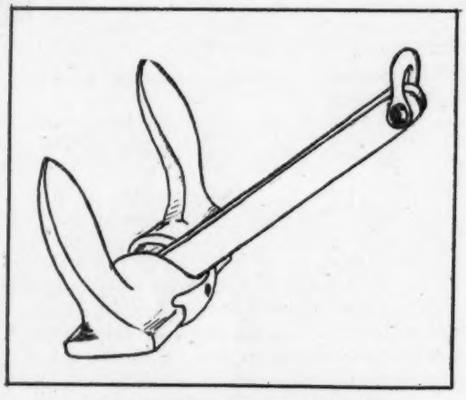
WITH THIS SLIDING STOCK THE BAR FREELY MOVES DOWN THE TWISTED SHANK TO THE FLUKES, SO THAT THE ANCHOR MAY TAKE UP LESS ROOM WHEN NOT IN EVERYDAY USE





IN THE BABBITT ANCHOR THE YACHTSMAN FINDS A GOOD AND USEFUL TYPE OF STOCKLESS ANCHOR—THE FIRST PATENT ANCHOR OF ITS TYPE AND A GOOD AND POPULAR ONE DOWN TO DATE

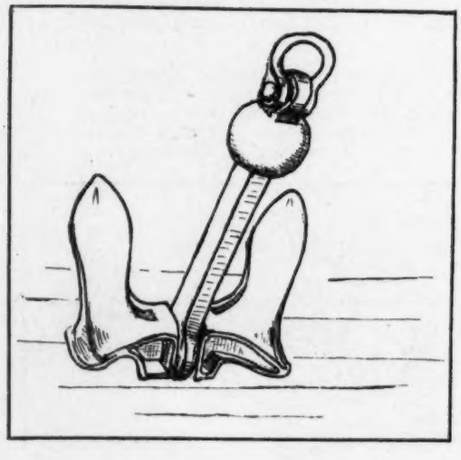
anchor, of the folding grapnel form will be found convenient also, since it may be often



DURKEE'S CRESCENT ANCHOR IS A GOOD STOCKLESS TYPE WITH BALL SOCKET CAST INTO THE HEAD, WHICH DOES AWAY WITH THE USE OF A PIN TO KEEP THE SHANK FROM BACKING OUT

used in place of the heavier anchors to moor the boat at a temporary berth. The question

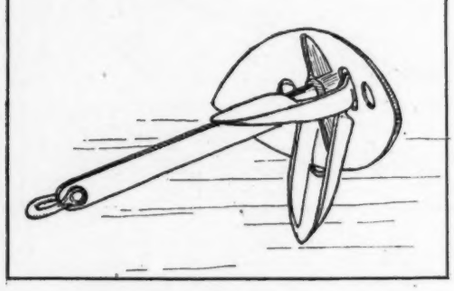
THE BALDT ANCHOR IS AN EFFICIENT FORM OF THE STOCKLESS ANCHOR AND IS FITTED WITH A BULB AT THE SHACKLE END OF THE SHANK TO PREVENT RIDING UP UNDER THE PULL OF THE BOAT'S CABLE



of weight is the important factor in selecting the two big anchors, and the yachtsman can make no mistake by allowing a pound and a half of anchor to every foot of overall length. This weight may be in excess of the weight often supplied but most amateur manned craft are not sufficiently well heeled. If lighter anchors are preferred, well and good, but the minimum weight should not fall below one pound of anchor to the overall foot. The proper equipment for boats of different sizes is here given in tabulated shape.

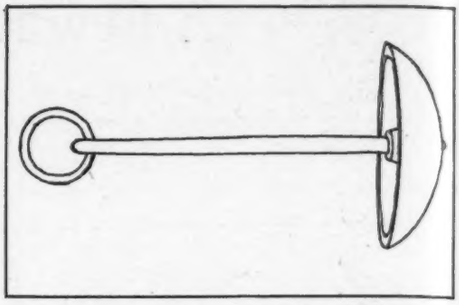
Length Boat	Diameter Rope and Chain		Anchors Average	Heavy
30 ft. and under	$\frac{3}{4}$	$\frac{3}{16}$	40 lbs.	60 lbs.
35 to 40 ft.	1	$\frac{1}{4}$	60 "	80 "
50 to 50 "	$1\frac{1}{4}$	$\frac{5}{16}$	70 "	100 "
50 to 60 "	$1\frac{3}{8}$	$\frac{3}{8}$	90 "	120 "

In picking out the anchors it is a sensible plan to have the pair balance up for convenience in handling. For example in a thirty-footer, the pair of anchors should have a combined weight of 100 pounds. This may be evenly divided between the two, which is the usual method, but owing to the fact that a comparatively light anchor will often serve many purposes quite as well as a heavy one, and is moreover a great deal less work to handle, it will be found a good arrangement to have the port anchor a trifle lighter, say 40 pounds, and the starboard anchor of 60 pounds weight. This balances things up very nicely, a point that will be duly appreciated while cruising.



A COMBINATION ANCHOR HAVING THE GOOD POINTS OF THE STOCKLESS FORM COMBINED WITH THE ELLIPTICAL SAUCER-RIM OF THE MUSHROOM, IS MERGED IN THE HALL COMBINATION ANCHOR, WHICH IS A GOOD AND USEFUL TYPE

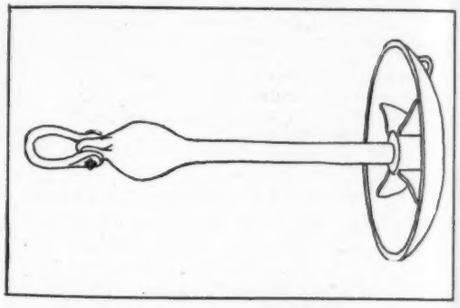
Every cruising craft should therefore carry two anchors and each anchor should have a good cable proportioned to its weight. The hemp rope cable is much used and is more flexible to handle than manila, but the latter is most used. Both are good and are generally preferred by skippers in preference to chain, because of lightness and greater ease in handling. The length of the cable is governed more or less by the depth of water, but all cables should not be less than



MUSHROOM ANCHORS ARE RIGHTLY CONSIDERED THE MOST EFFICIENT FORM FOR THE PERMANENT MOORING, FOR THE DEEP SAUCER-SHAPED RIM SINKS WELL DOWN IN A SANDY OR MUDDY BOTTOM

150 feet long, and 200 feet is generally accepted by good sailors as the best choice.

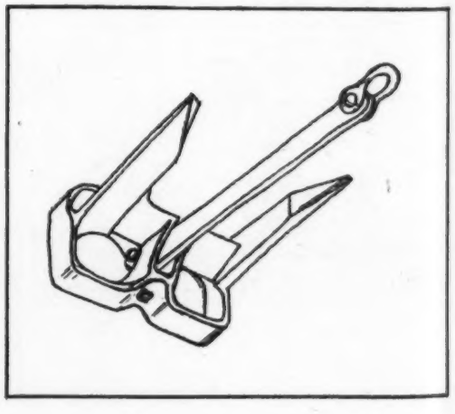
The cables should be carefully looked over at outfitting time and if the old rope cables

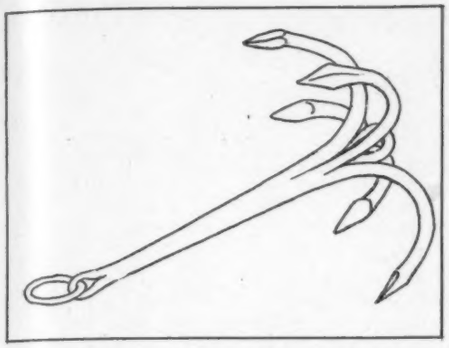


FITTED WITH A BULB AT THE SHACKLE END OF THE SHANK, KEEPS THE ANCHOR DOWN AND OFFSETS THE UPPULL OF THE CABLE AND THUS INCREASES THE HOLDING POWER OF THE MUSHROOM ANCHOR

are much chafed or worn or the chain is considerably rusted, a new one should be purchased. Galvanized anchors and chains are the most economical and will give

IN THE EELLS FORM OF STOCKLESS ANCHOR CONSIDERABLE WEIGHT IS SAVED BY THE OPEN HEAD OR CROWN WHICH IS SECURELY PINNED TO THE SHANK TO ENABLE THE ANGULAR FLUKES TO DIG DEEPLY INTO THE BOTTOM

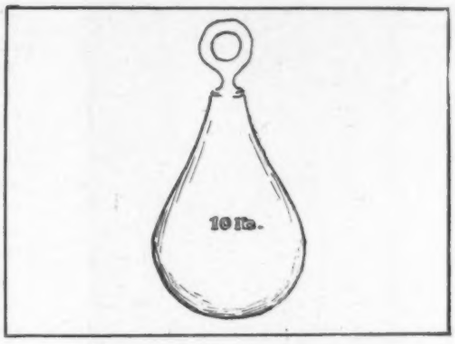




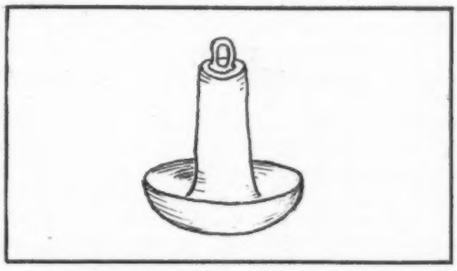
GRAPNEL ANCHORS ARE VERY USEFUL FOR TEMPORARILY MOORING THE BOAT IN FAIR WEATHER AND IS MUCH USED AS A ROW BOAT AND SKIFF ANCHOR

double the service of the common black iron finish, being more cleanly to handle and the coating of zinc prevents the iron from rusting. For attaching cable to anchor the fisherman's bend is generally employed for a rope cable, while a shackle and pin is used in securing the end of the chain cable. But however good the tackle may be the skipper cannot feel safe unless his craft is provided with good bitts. Many of the smaller motor craft are only provided with heavy cleats bolted or more often screwed to the decks. This is too flimsy an attachment for belaying the riding cable, for bolts will snap off and screws are likely to pull out under the pull of the boat. All boats over 25 feet in length should be fitted with stout bitts, made of oak or ash, and extended through the deck and stepped into the stem-piece of the keelson. Stern bitts or samson posts will also be found very handy when fitted aft, for making fast a stern line and for belaying the towing cable. In sailing craft, the cable may be made fast to the mast, but in motor yachts stout bitts are essential, as the mast of engine propelled boats are usually stepped on the top of the house.

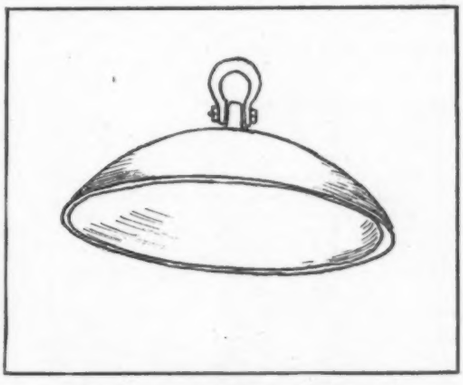
When the skipper finds it necessary to let go a second anchor, drop it from the opposite bow and pay out sufficient cable to allow the second to take a fair scope, then take a turn over the bitts, letting enough strain come upon it to make both anchors bite well into the bottom, or heave in on the first cable to equalize the strain on both. If the boat is dragging on the first anchor, all that is necessary for the skipper to do is to pay out on the second cable and wait until the boat fetches up on the cable, then make fast. To prevent any possibility of the free or bitter-end of the cable from going overboard, this end should be securely fastened. If a chain cable is used, put a swivel in the chain to take care of any kinking, occurring when the yacht swings in wind or tide.



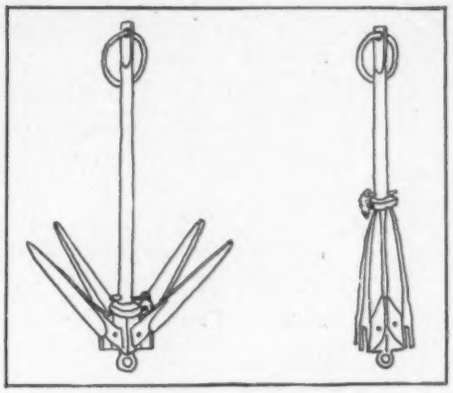
THE PLUMB-BOB IS A LIGHT FISHING ANCHOR LARGELY USED IN MOORING SMALL CRAFT IN THE COMPARATIVELY CALM WATERS OF RIVER, LAKE AND BAY, FOR IT CANNOT FOUL LIKE ALL ANCHORS OF THE FLUKE TYPES



BUTTON-ANCHORS ARE ANOTHER VARIATION OF THE PLUMB-BOB AND ARE LARGELY USED AS FISHING ANCHORS, BUT ARE MADE IN HEAVIER WEIGHTS THAN THE BOB-ANCHOR

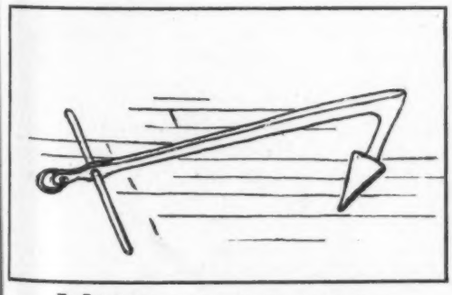


THE SUCTION ANCHOR IS MADE IN THE FORM OF A DEEP SAUCER, AND ITS HOLDING POWER DEPENDS UPON ITS WEIGHT AND THE SUCTION AFFORDED BY A SMOOTH SANDY OR MUDDY BOTTOM

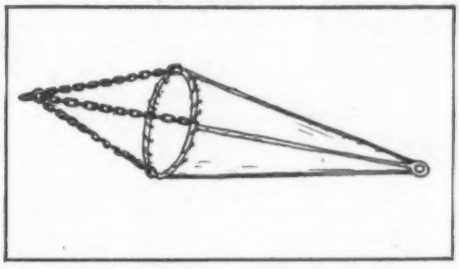


THE CHESTER FOLDING ANCHOR IS SIMILAR IN FORM TO THE GRAPNEL TYPE, WITH THE RADIATING FLUKES HINGED TO THE CROWN TO FOLD UP ALONGSIDE THE SHANK, IN THE MANNER IN WHICH AN UMBRELLA IS CLOSED FOR CARRYING

The holding power of any anchor may be increased by means of a *kellet* which is much used by fishermen. This consists merely of a weight, as a stone or sand bag, made fast to the cable at a distance of some twenty-five feet from the anchor. The kellet should be sufficiently heavy to keep the cable well down to the bottom, but light enough to lift up under the pull of the boat. An anchor rigged up in this way utilizes the cable as a spring to take up the jerk of the boat. To put the kellet in use, simply lash the weight securely and tie in a running bowline knot to the weight, that it may slide down the mooring cable. Another line secured to the kellet, enables the skipper to keep it at the best height from the anchor to prove most efficient, and by this line the kellet may be hauled aboard at any time.



MOORING ANCHORS ARE MADE LIKE THE STOCK ANCHOR, BUT WITH ONLY ONE FLUKE WHICH IS FIRMLY PRESSED INTO THE BOTTOM TO FORM A PERMANENT MOORING, WITH NO PROJECTING FLUKE TO FOUL THE CABLE WHEN THE BOAT SWINGS WITH THE TIDE



THE MARINE DRAG OR FLOATING ANCHOR IS A CONE-SHAPED CANVAS BUCKET WITH A CORK BUOY ATTACHED TO PREVENT IT FROM DIVING. WHEN THROWN OVERBOARD THE BAG FILLS AND FLOATS UNDERWATER AHEAD OF THE BOW AND KEEPS THE CRAFT HEADED TO THE SEAS TO RIDE IN SAFETY

A Message from the Sea

U. S. S.————
At Sea, March 10, 1918

My dear Mr. Atkin:

Though I have been in the service nearly a year now, most of which has been spent at sea, I have not in any way lost my interest in YACHTING, nor forgotten that for ten years I was editor of the magazine of that name, whose editorial chair you are now holding down. I still watch for the magazine eagerly each month and read it carefully (and critically, as is but natural, you will admit,) finding it good; for I am a firm believer that boating is the greatest game of all—barring this grim one we are now engaged in and which must be pushed through to a finish, however hard the work may be.

I've had a varied and interesting experience in the Navy. For several months I was navigating officer of one of the Navy cruisers, and for the past several months have been in command of the ———— We've had a hard winter at sea—one of the worst in years, but it is a great life, all right.

In spite of the hard work I've had time to think of other things besides war, particularly of yachting; and I find this is so with a great many others in the service, both among officers and enlisted men, for I see them reading YACHTING and the other boating magazines and hear them discussing yachting affairs. And just as the men in the trenches want to read something to take their minds off their present life, so the men here are interested still in sports, and particularly in boats.

I am fully in accord with the views of both the War and Navy Departments that sports shall be encouraged during the period of the war, and not discouraged. Especially is this true in regards to boating; for not only is the sport a healthful one which brings relaxation from the strenuous work of war, and of conditions war imposes, but it brings out those very qualities most essential to the navy and army—nerve, skill, self reliance, and resourcefulness. It should be encouraged particularly among the younger men who will naturally be the next to get into the service.

Personally, I believe that boating as a sport is going to come back stronger than ever after the war is over, and will boom as it never has before. For one thing, the yachtsmen of this country have responded nearly 100 per cent to the call, and most of these have gone into the navy or naval reserve. In this branch of the service have gone also thousands whose leaning was towards the water (all those who had a drop of salt in their veins) and these men, once given a taste of the sea, so that they can wring water out of their socks and still smile, are not going to give it up, but are going to follow the water for recreation and sport. Also, the love of the outdoors and the need of outdoor sport engendered by army life are going to turn thousands to the water when these men find themselves in civil life again; but it will be largely in small craft, both power and sail, which are not too large to be commanded or handled by the owners themselves. I am as sure of this as I am of anything.

It is the duty of every yachting magazine at this time to do all it can to keep those at the front or on the sea in touch with boating affairs and the development of pleasure craft, and to make its pages just as interesting as possible for those who want to think of the lighter side of life now. It would be a *crime* if any such magazine were allowed to deteriorate or die because of the business complexities of war times. The magazines are needed now more than ever before, and I hope you'll "go to it" and give us the best there is in you.

While most of the yacht yards and marine engine builders are at present prosperous and filled up with war orders, they do not want to forget that they are primarily equipped and in business to fill the demand of those who want pleasure boats; and they must be in a position to fill this need when the war is over. They cannot afford to let the boatman and prospective boat owner forget that they are in business to build boats for pleasure purposes, and they must not let the magazines that do so much to make the sport what it is deteriorate for lack of support. They are very short-sighted if they do!

Also, they must not in their present prosperity, overlook the fact that they will (shortly, I hope) be again dependent on the pleasure boatman for support. It's up to them and up to the magazines to help keep the yachting spirit alive. It's the best kind of patriotism to-day.

"Them's my feelin's," Atkin, and you may be sure I'm rooting for the time when I can get into my own little boat again and go off for a quiet week-end, subject to no orders but my own sweet fancy. More power to your elbow and to YACHTING,

Faithfully your old boss,
(Signed) HERBERT L. STONE.

To Wm. Atkin,
Ed. YACHTING,
New York, N. Y.

HERBERT L. STONE
LIEUT. U. S. N. R. F.

MERCHANTMEN

All honor to the merchantman,
And ships of all degree,
In warlike dangers manifold,
Who sail and keep the sea,
In peril of unlitten coast
And death-besprinkled foam,
Who daily dare a hundred deaths
To bring their cargoes home.

A liner out of Liverpool—a tanker from the Clyde—
A hard-run tramp from anywhere—a tug from Merseyside—
A cattle-boat from Birkenhead—a coaler from the Tyne—
All honor be to merchantmen while any star shall shine!

All honor be to mechantmen,
And ships both great and small,
The swift and strong to run their race
And smite their foes withal;
The little ships that sink or swim,
And pay the pirates' toll,
Unarmored save by valiant hearts,
And strong in nought but soul.

All honor be to merchantmen,
As long as tides shall run,
Who gave the seas their glorious dead
From rise to set of sun;
All honor be to merchantmen
While England's name shall stand,
Who sailed and fought, and dared and died,
And served and saved their land.

A sailing ship from Liverpool—a tanker from the Clyde—
A schooner from the West Countrie—a tug from Merseyside—
A fishing smack from Grimsby town—a coaler from the Tyne—
All honor be to merchantmen while sun and moon shall shine!

[C. Fox Smith in the London Chronicle.]

Navigation for Amateur Skippers

A Practical and Informative Article on How to Plot Out the Boat's Course, Determine Her Position While at Sea, and Handle the Craft With the Safety of the Professional

By LIEUT. COM. F. W. STERLING

PART I

NAVIGATION is that science which affords the knowledge necessary to conduct a vessel from one point to another on the earth and provides a means of determining the position of the vessel at any time. There are three general branches to this science, viz:

(1) Piloting.
(2) Dead Reckoning.
(3) Nautical Astronomy.

Piloting is determining the position of a vessel by observations on known visible charted objects, or by soundings of the depth of the sea.

Dead Reckoning, or the method of sailings, is a means of deducing a vessel's position from the direction and distance sailed from a previous known position. This method involves the rules of plane trigonometry.

Nautical Astronomy treats of the determination of a vessel's position by observation of celestial bodies—the sun, stars, moon, and planets. It is based on spherical trigonometry and its use is principally confined to deep sea navigation. On this account it is not dealt with in this work.

UNITS DEFINED

The Statute Mile, which is 5,280 feet, is employed in land measurements. It is used to some extent in navigating river and lake vessels, especially on the Great Lakes, but by far the more commonly used unit is

The Geographical or Nautical Mile. This unit of linear measurement, used by navigators, is generally termed the nautical or *sea mile.* It is approximately 6,080 feet. It has various values as defined by the standards of different countries, but from the navigator's standpoint these various standards do not vary materially from the above value. It is equal to a *minute of arc of the equator.* For purposes of navigation the nautical mile is assumed equal to a minute of latitude at all points of the earth. Hence, when a vessel changes her position to the north or south by one nautical mile, it is assumed that the latitude has changed 1′. Owing to the fact that the meridians converge toward the poles, the difference in longitude due to a change of position of one mile to the east or west varies with the latitude. Whereas a *departure* (change of position to east or west) of 1 mile at the equator equals 1′ of arc, the same departure of 1 mile in a latitude of 60° amounts to 2′ in longitude.

The *Knot* is the measure of speed and equals *one nautical mile per hour.*

The Axis of the Earth is a diameter passing through the poles of the earth and about which the earth revolves.

The Terrestrial Equator is a great circle of the earth passing through the middle point of this axis and perpendicular thereto. It divides the earth into the Northern and Southern hemispheres, and every point on this equator is equidistant from the poles. Longitude is measured along the equator.

Terrestrial Meridians are great circles of the earth passing through the poles. They are perpendicular to the equator. Latitude is measured on the meridians, being 0° at the equator and 90° at the poles. The *Meridian* of a place is that meridian passing through the place.

The Prime Meridian is that meridian from which longitude is measured. The meridian passing through Greenwich, England, is almost universally accepted as the prime meridian for navigation. Longitude is measured from 0° at Greenwich, East and West to 180°.

Parallels of Latitude are small circles of the earth parallel to the equator.

The Latitude of a place is the arc of the meridian intercepted between the equator and that place. It is reckoned north and south from the equator as an origin, up to 90° at the poles.

The Longitude of a place is the arc of the equator intercepted between the meridian of the place and the prime meridian. Longitude is measured East and West through 180° from the meridian of Greenwich.

The Difference of Latitude of two places is the portion of a meridian included between the two parallels of latitude passing through the two places. When two places are on the same side of the equator the *difference of latitude* is the numerical difference between the latitudes of the places; when on opposite sides of the equator the *difference of latitude* is the numerical sum of the two places. The difference of latitude is called North or South to indicate in which direction a vessel would sail to make the change.

The Difference of Longitude of two places is the arc on the equator intercepted between the meridians passing through the two places. When the places are in the same longitude (viz.: East or West), *the difference of longitude* is the numerical difference between the longitudes of the two places; when in different longitudes, *the difference in longitude* is the numerical sum of the two longitudes, or 360° minus this sum. The difference of longitude is marked East or West to denote in which direction a vessel would sail to make the change.

NAVIGATIONAL INSTRUMENTS, BOOKS, RECORDS, ETC.

NAVIGATIONAL INSTRUMENTS

The following instruments are indispensable to the navigator when piloting: (a) dividers or compasses, (b) parallel rulers, (c) log, chip or patent, (d) lead and line, (e) compass, liquid, dry, or gyroscopic, (f) azimuth circle, (g) barometer, mercurial or aneroid, (h) thermometer. A sextant and protractor may also be included in the outfit, although the former is entirely unnecessary.

(a) DIVIDERS (OR COMPASSES) consist of two pointed legs movable about a joint so that the points at the extremities of the legs may be set at any desired distance apart. *Dividers* is an instrument used for measuring distances on a chart. One of the pointed extremities can be replaced by a pencil or pen for describing arcs or circles and in this case the instrument is called a *compass.*

(b) PARALLEL RULERS consist of two wooden straight edges, joined by two metal links, so constructed that in all positions of the links the straight edges are always parallel to each other. It is used to draw lines parallel to each other, and especially in chart work for transferring lines on the chart to the compass rose, for laying off courses by transferring them from the compass rose, and for plotting bearings of objects.

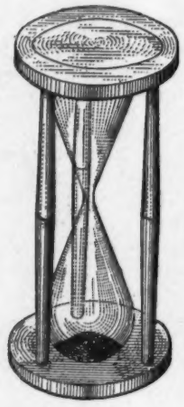
(c) THE LOG is an instrument for measuring or estimating the speed of the vessel and the distance run for any given period. It takes a variety of forms that may be classified under two heads, the chip log (which measures the speed of the vessel at any instant) and the patent log (which is cumulative and measures the distance run for any interval).

The Chip Log, which is quite inexpensive and can be made by the navigator, consists of three parts, the *log-chip*, the *log-line*, and the *log-glass.* Its principle is that, if a light object is thrown from the ship, it ceases to partake of the motion of the ship as soon as it strikes the water. If after any known interval of time its distance from the ship is known (this being equivalent to the distance the ship has travelled in the known interval of time) the approximate speed of the ship can be computed.

The *log-chip* is a thin wooden quadrant of about 5″ radius, the circular edge being weighted with lead so that the chip will float upright, apex up. The log-line is knotted into a hole at the apex. The ends of a bight of line are knotted into the other two

corners of the chip. Into this bight is seized a wooden peg which fits into a socket seized on the log-line. When the peg is in the socket, all three lines to the corners of the chip are of equal length. This contrivance facilitates hauling in the chip after the speed is obtained.

The *log-line*, which is made of halyard stuff, is about 150 fathoms long. One end



WHEN THE LOG IS HOVE THE SAND-GLASS IS CAPSIZED AS THE RED BUNTING MARK PASSES OUT, AND WHEN THE SAND HAS RUN OUT THE OBSERVER NOTES THE NUMBER OF KNOTS AND TENTHS ON THE LOG LINE WHICH HAS PASSED THROUGH HIS HANDS

is secured to the chip and the other to a reel on which the line is wound. The line is marked at about 15 fathoms from the chip end by a piece of bunting. This part of the line is called *stray line*. From this piece of bunting the line is marked at every 47 feet 3 inches by a piece of fish line held between the strands of the log-line, the line being marked by a knot in the fish line for every division (47 feet 3 inches) from the bunting. Thus at 94 feet 6 inches from the bunting the piece of fish line has two knots in it, etc. These main divisions, called knots, are further subdivided into five equal parts by pieces of white bunting between the strands to indicate two-tenths of a knot.

The *log-glass* is a sand glass similar to an hour glass constructed to run for 28 seconds. A 14-second glass is also used.

Three men are needed to "heave the log." One heaves the chip-log and tends the log-line, one holds the reel, and one tends the log-glass.

To find the speed by the chip-log, hold the reel by its handles and unwind some of the stray line. Insert the toggle in its socket and heave the chip overboard, allowing the line to run out freely. As the first piece of bunting, which marks the end of the stray line, passes over the rail invert the log-glass. Just as the last particle of sand passes from the top to the bottom of the glass seize the log-line, which has been running out freely. The subdivisional mark which is now at the rail indicates the speed of the vessel in knots and tenths. For instance, if the cord having three knots is at the rail, the vessel is making three knots per hour. This can be demonstrated as follows:

Principle of Construction. When the chip hits the water it ceases to partake of the motion of the ship and becomes stationary in the water. Between the first mark and the third the interval of time is 28 seconds (the time it takes the sand to run from the top to the bottom of the glass). In this interval of time the vessel moves 3 times 47 feet 3 inches (as shown by the log-line). Now in feet $\frac{3\times47.25\times60\times60}{28}$ is the distance that the vessel would move in one hour at the same rate.

Or $\frac{3\times47.25\times60\times60}{28\times6080}=3$ knots per hour.

The 28-second glass is used for low speeds. For speeds over 5 knots a 14-second glass is used and the reading of the log-line is doubled.

To haul in the line after a reading is obtained, give the line a sharp tug. This will release the toggle and the chip will lay flat on the surface and can be hauled in hand over hand and reeled up.

The whole apparatus should be overhauled frequently to check the log-line markings and the log-glass. The line must be frequently checked and remarked as it stretches or shrinks, and should be marked when wet. The glass is checked by comparing it with a watch, and the sand is dried if it becomes damp as indicated by requiring more than 28 seconds to pass from the top to the bottom of the glass.

Figure 1 shows the parts of the chip-log and the necessary dimensions for making one of these instruments.

In lieu of the *log glass* furnished with commercial outfits time may be kept with the watch and for convenience a 30-second interval may be substituted for the 28-second interval indicated by the log glass. In this case the knot marks on the log line are placed 50 feet 8 inches apart.

The principle of marking the log line can be checked easily. Suppose the vessel is moving at the rate of one knot (6080 feet per hour). Then in 30 seconds it would move 50 feet 8 inches. This is the length between markings. If the line is accurately marked and the log properly constructed the speed indicated by the chip log will be one knot.

The Patent Log is a mechanical contrivance for measuring the actual distance that a vessel travels through the water. It is sometimes called a taff-rail log, because it is usually installed on the taffrail. It takes a variety of forms, but all are more or less subject to inaccuracies and all embody the same principles.

The patent log consists of three parts, (1) the rotator, a conical shaped piece of brass fitted with vanes which is towed astern and caused to rotate as it passes through the water at a speed proportionate to the speed of the vessel; (2) a register, located on the vessel's rail. This register is connected to the rotator by a line which communicates the revolutions of the rotator to cyclometer gear in the register. The whole is so calibrated that the miles and tenths run by the vessel are registered by appropriate dials on the register; (3) the line, which is specially made. Usually about 400 feet of line is used to connect the rotator and the register. A high speed requires a longer line than a low speed. The parts of the Negus Taffrail Log are shown in Figure 2.

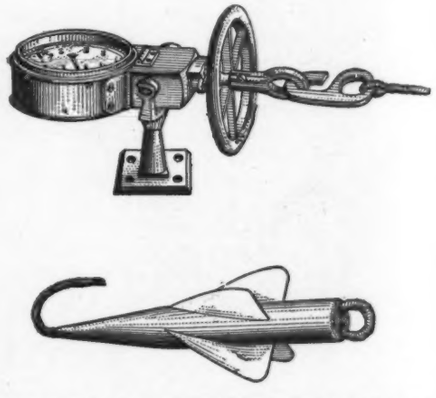
Patent logs are not exact instruments and many inaccuracies enter even when in good working order. They must be carefully watched. If correct at one speed they may be inaccurate at a faster or slower speed; they register differently in a head and a following sea, and in smooth and rough weather. The error of the patent log should be determined for varying conditions of sea and at different speeds for every run between two ports, if the speed is not affected by tide, and a record of errors under these varying conditions should be kept to correct future readings.

The revolutions of the screw propeller afford the most accurate measure of the speed of a vessel and the distance steamed. The revolutions of the propeller (engine speed) can be obtained by a small instrument called a tachometer. By running over a measured mile (or other known distance) at various engine speeds, the revolutions corresponding to various speeds can be obtained and tabulated thus:

Revolutions	*Speed in Knots*
85	7
97	8
110	9
125	10
142	11
160	12 etc.

Entering this table with the average revolutions for any interval of time, the corresponding speed can be obtained. While this is the most accurate method of getting the speed, it must be borne in mind that by whatever of the above methods the speed is obtained, it is the *speed through the water* and that to obtain the *speed made good over the ground* allowances must be made for the local current.

(d) THE LEAD AND LINE is a device for ascertaining the depth of water. It con-



THE PATENT LOG IS EQUIPPED WITH A PROPELLER AND THE BOAT'S SPEED IS REGISTERED ON A DIAL

sists of a suitably marked line, having a long hexagonal or octagonal lead at its end. Two sizes of leads are used, one weighing from 7 to 14 pounds, called the *hand lead*, and used for depths up to 25 fathoms, and the other weighing from 30 to 100 pounds, called the *deep sea lead*, and used for depths over 25 fathoms.

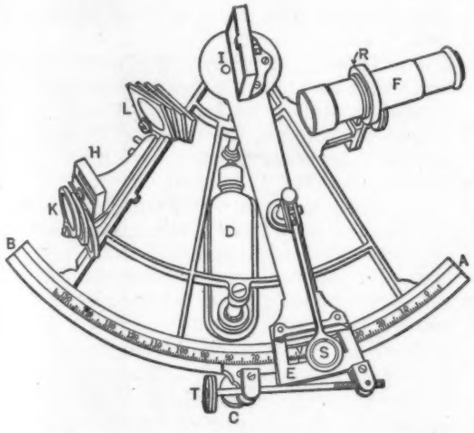
Lead lines are marked, measuring from the bottom of the lead secured to the line, as follows:

At 2 fathoms with two leather strips,
3 fathoms with three leather strips,
5 fathoms with a white rag,
7 fathoms with a red rag,
10 fathoms with a leather having a hole in it,
13 fathoms the same as 3,
15 fathoms the same as 5,
17 fathoms the same as 7,
20 fathoms with two knots,
25 fathoms with one knot,
30 fathoms with three knots,
35 fathoms with one knot, etc.

Sometimes the lead is marked in feet around the depth corresponding to the vessel's draft. Soundings that correspond to depths marked on the lead line are called "*marks*"; intermediate soundings are called "*deeps*." Lead lines should be marked when wet, and should frequently be verified and remarked when necessary. The bottom of the deep sea lead is hollow. When taking a sounding this cavity is filled with tallow (called "arming the lead") which picks up a sample of the bottom. This allows a comparison with the character of the bottom as indicated on the chart.

THE SOUNDING MACHINE is an instrument for obtaining rapid soundings at great depth. It is employed on all large ships and is described in the next issue.

(e) THE COMPASS may take one of three forms, liquid, dry, or gyroscopic. The liquid compass is the one most commonly used in this country and will be described later. The dry compass is used extensively in England. The gyroscopic compass is used in the U. S. Navy; its high cost precludes its use in any but the largest ships.



WITH THE SEXTANT THE SHIP'S POSITION IS DETERMINED BY FINDING THE ALTITUDE WHICH IS MERELY THE ANGULAR DISTANCE OF THE SUN OR OTHER HEAVENLY BODY ABOVE THE VISIBLE HORIZON

The Wet Compass consists of a skeleton card 7½" or less in diameter, made of tinned brass, resting on a pivot in liquid, with provision for two pairs of magnets symmetrically placed. The magnets consist of four cylindrical bundles of steel wire that are magnetized as bundles between the poles of an electromagnet. They are cased in cylinders and secured to the underside of the compass card in a direction parallel to the North and South markings of the card.

The card is curved, annular shape or flat, graduated by quarter points, and a card circle is adjusted to its outer edge graduated to half degrees, with readings at every point and every five degrees, as seen in Figure 3.

The card is secured on a concentric spheroidal air vessel which rests on liquid in the compass bowl. The air vessel is fitted with an agate bearing which rests on a pivot in the compass bowl, most of the weight of the card being supported by the liquid and only a slight pressure being on the pivot.

The compass bowl of cast bronze has a glass cover so that the card can be seen. The cover is made tight by a rubber gasket. The liquid in the bowl is 45% pure alcohol and 55% distilled water. The inside of the bowl is painted white and a lubber's point is drawn in the bowl in the fore and aft line of the ship. This is the reference point when reading the compass.

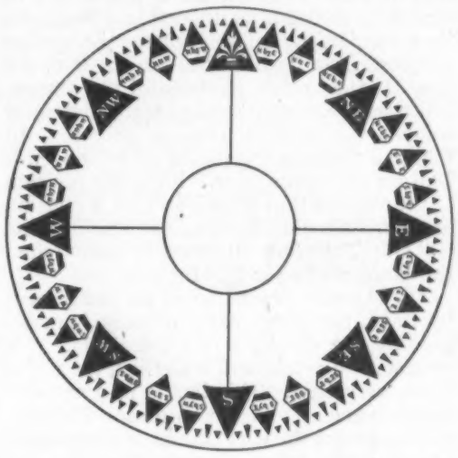
The under side of the bowl constitutes an expansion chamber which allows for expansion with a change of temperature of the liquid in the bowl. The bowl is mounted by double gymbals on a composition stand. This stand contains magnets to *compensate the compass*. The bowl can be covered by a spun brass hood which fits on the stand and can be revolved for taking bearings.

Boxing the Compass is the process of naming the points in their order. The four points, North, East, South, and West, are called *cardinal* points. Midway between the cardinal points are the *intercardinal* points, N.E., S.E., S.W., N.W. The names of all points are shown in Figure 3.

(f) THE AZIMUTH CIRCLE consists of a composition ring which fits over the edge of the compass bowl, very closely. At one extremity of a diameter is a curved mirror hinged to move about a horizontal axis, and facing this, at the other extremity of the diameter, is a cased prism which has a narrow slit in the case facing the mirror. This part of the instrument is used to take azimuths of the sun for compass work.

At the extremities of another diameter (at right angles to the first) is a hinged vertical wire, and a hinged plate having a vertical slit. This is used for taking direct bearing of an object. Hinged on the same pivot as the vertical wire is a smoked glass reflector for azimuth work with the sun or stars.

A level on the azimuth rim shows when the circle is horizontal. All observations must be taken with a horizontal aziumth circle.



THE CARDINAL AND INTERCARDINAL POINTS OF A COMPASS ARE HERE SHOWN WITH SUB-DIVISIONS AND QUARTER POINTS

(g) THE BAROMETER is an instrument for measuring the atmospheric pressure. Barometric observations are necessary for weather predictions. Some form of barometer is necessary on all vessels. There are two forms, the Mercurial Barometer, and the Aneroid Barometer. The mercurial barometer is carried on large yachts. Smaller boats should be equipped with the aneroid.

The Mercurial Barometer indicates atmospheric pressure by the height of a column of mercury. If a glass tube, closed at one end, is entirely filled with mercury and then placed open end down over a cup of mercury (no mercury being allowed to escape from the tube during the operation) the mercury in the tube will fall until its level is about 30 inches above the level of the mercury in the cup. This column of mercury, in the tube, is sustained by the pressure of air on the mercury in the cup, and will rise or fall with this pressure (which is atmospheric pressure).

This is in effect a barometer. In practice the cup and tube are encased in a brass case, cut away near the level of mercury in the tube; along this opening is a scale for reading the height of mercury in inches, a *vernier* being fitted for accurate readings.

The Vernier is an attachment used on many instruments, such as barometers, sextants, protractors, etc., to facilitate exact readings. It consists of a metal scale, similar in construction to that of the scale to which it is fitted and arranged to move along the main scale by a rack and pinion.

The vernier scale has a total length equal to one of the whole divisions of the main scale, but this length is divided into one more or one less part than the number of

subdivisions into which the whole division of the main scale is divided.

Suppose that a barometer scale is divided into tenths of an inch and that a length of nine such divisions be divided into ten parts for a vernier, Figure 5. Number the vernier divisions from 0 at the bottom to 10 at the top. If the bottom division of the vernier is brought level with the top of the mercurial column the scale is read as follows: In Figure 5 the mercury stands above the mark 29.6 on the main scale. Find the division of the vernier that coincides with a division of the main scale. In the figure this division is "1." Therefore .01 must be added and the exact reading is 29.61.

The Aneroid Barometer is an instrument by which the atmospheric pressure is measured by the elasticity of a metal plate. It consists of a cylindrical brass box, the metal being very thin. This box is in a state of partial vacuum. As the atmospheric pressure increases the enclosed air is compressed and the ends of the box approach each other. Suitable levers communicate this motion of the box ends to a pointer that moves over a suitable scale. These levers magnify the motion of the box ends and the scale is calibrated to indicate the air pressure.

Barometer Comparisons. Whatever the form of barometer used, it will be subject to errors due to derangements or to inaccurate construction. Because of this it is necessary to compare the barometer frequently with a standard of known error. At all principal ports a standard mercurial barometer is available for comparison. From this comparison the barometer error can be computed and applied to future readings. At the principal ports the reading of a standard barometer at specified times is published in the daily papers. By observing the barometer on board at the same time the error of the vessel's instrument is obtained.

(h) THE THERMOMETER is an instrument for measuring temperatures. Its principle is too well known to require discussion. It is an aid to the mariner in predicting weather judging the humidity of the atmosphere, and through the temperature of the sea water, finding proximity of currents such as the Gulf Stream. Sea water used for observations should be drawn from at least three feet below the surface.

THE PSYCHROMETER consists of two thermometers called the *wet and dry bulbs*. The dry-bulb thermometer gives the temperature of the air. The wet-bulb thermometer is exactly like the dry-bulb except that its mercurial bulb is surrounded with cloth which is kept moist. It indicates the *temperature of evaporation*. By reading both bulbs the humidity of the air is obtained and probability of rain can be foretold.

THE SEXTANT* is one of the most valuable of deep sea navigational instruments, but is of little use when coasting. It is used to obtain the angle between two objects, terrestrial or celestial, by bringing into coincidence at the observer's eye the rays of light from the two objects, one ray direct and the other ray by double reflection. Its general form is shown in the figure. The frame is of brass or other composition. The graduated arc (BA) is generally of silver, the graduations being by degrees and minutes, the smallest subdivision representing generally 10′. By means of the vernier (E) the instrument can be read to smaller divisions, usually 10″, 15″, or 20″. The magnifying glass (S) facilitates reading the vernier. A wooden handle is fitted for holding the instrument. A brass index arm carrying the vernier (E) is pivoted at the center of the arc (BA). It carries the index glass (I) which moves with the pivot of the index arm as an axis. A second glass (H), called the horizon glass, is fixed to the frame. It is half mirror and half transparent, the line of demarcation being parallel to the plane of the instrument. Both glasses are perpendicular to the plane of the instrument and are provided with adjusting screws to permit of adjustment.

The index arm can be clamped in position on the arc (BA) by the clamp (C) and the tangent screw (T) can give the arm small movements after it is clamped. A telescope (F), supported in an adjustable ring (R) on the frame, is used to give greater distinction to the images. In lieu of this telescope a star telescope or plain sighting tube may be used. Colored shades (LK) are fitted before the index and horizon glasses to protect the eye from sun glare. The same result obtains by using the colored cap on the telescope.

The vernier (E) is constructed on the same principle as that explained under the barometer.

To Use the Sextant for measuring angles proceed as follows: Point the telescope at the lower object, if one is above the other, or at the left hand object, if both are in nearly the same horizontal plane. Keep this object in direct view through the transparent part of the horizon glass, and move the index arm until the reflection of the second object is seen in the silvered part of the horizon glass. When the objects are nearly in coincidence, clamp the index arm and by the tangent screw bring the objects in exact coincidence at the line of demarcation on the horizon glass. The angle between the objects is now shown on the arc. When measuring the height of an object above the horizon the nearest point of the horizon, directly below the object must be employed. To find this point swing the instrument about the line of sight as a center, keeping the image of the object in the middle of the field. The object will appear to describe the arc of a circle, the lowest point of which marks the vertical. When bringing a celestial object down to the horizon it is usual to set the instrument to zero and point it at the object. Then keeping the object in the field move the index arm until the horizon appears in the field.

Adjustments of Sextant. The adjustments ordinarily made by the navigator are to keep the horizon and index glasses perpendicular to the plane of the instrument, and the line of sight parallel to the plane of the instrument.

Adjustment of the Index Mirror. Clamp the arm near the middle of the arc. Place the eye near the index mirror and sight along the plane of the instrument. If the direct and reflected images of the arc appear in one plane the index mirror is in adjustment, perpendicular to the plane of the instrument. If the reflected image of the arc appears to droop from the direct image the glass leans backward; if it seems to rise the glass leans forward. Adjust by screws back of the mirror.

Adjustment of the Horizon Mirror. Having adjusted the index mirror, select a celestial object, preferably a star, to adjust the horizon mirror. Put in the telescope and direct it toward a star. Move the index arm until the reflected image passes the direct image. If one passes directly over the other the mirror is in adjustment. If one passes to one side of the other, adjust the horizon mirror by its attached screws until the images pass one over the other.

Adjustment of the Line of Sight is more difficult. Screw the star telescope, which has two parallel wires in its eye piece, into the ring; turn the eye piece until the wires are parallel to the plane of the instrument. Select two well defined objects whose angle is greater than 90° (stars preferred). Bring these objects into coincidence at one wire of the eye piece. Now move the instrument until they are seen at the other wire. If still in coincidence the line of sight is in adjustment. If not, correct by the adjusting screws of the ring.

The Index Error of a sextant is an error in its reading due to the fact that when both mirrors are parallel the zero of the vernier does not coincide with the zero of the arc. This error does not necessarily remain constant and it is good practice to determine it each time the instrument is used.

The Index Correction, which is the index error with its algebraic sign reversed, is the correction that must be applied to an observed angle to get the true angle. It may be found by observation on (a) a star, (b) the sea horizon, (c) the sun.

(a) Bring the direct and reflected images of the star into coincidence and read the sextant. This reading is the index correction, and is + or — according as the vernier zero is to the right or left of the zero on the arc.

(b) Proceed in a similar manner, substituting the sea horizon for the star.

(c) Bring the upper limb of the direct image of the sun tangent to the reflected lower limb. Read the instrument and mark the reading + or — as in (a). Now

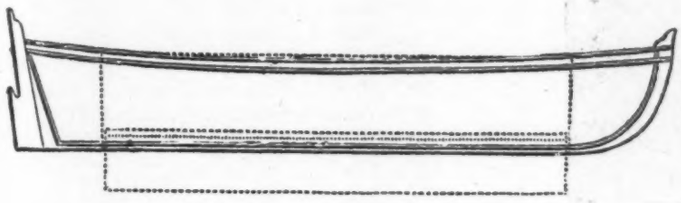
(Continued on page 253)

*Although the sextant is of little use for motor boats its description and method of adjustment is given here for general information.

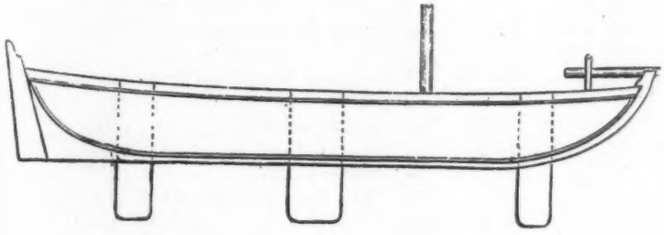
The Origin of the Centerboard

A Brief Epitome of the Evolution of the Board and Its Perfectment by an American Skipper

ACCORDING to history the first centerboard fitted to a vessel was adapted by Capt. Schank of the British Navy some time prior to 1771. This was a rectangular board, but the first triangular metal plate pivoted at the fore end, similar to the modern contrivance, was invented by Capt. Shuldham in 1809, and the original model is in Ipswich Museum.



CENTERBOARD BOAT DESIGNED BY CAPT. SCHANK FOR EARL PERCY ABOUT 1771.

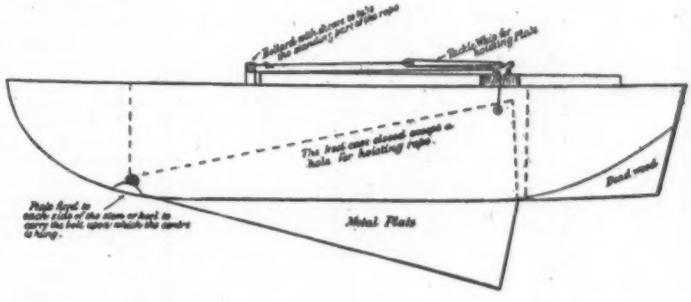


CENTERBOARD BOAT DESIGNED BY CAPT. SCHANK FOR THE BRITISH GOVERNMENT, 1789, WITH THREE SLIDING KEELS

There is no doubt that the Ipswich model shows the first idea of the centerboard pivoted and of the form in which the contrivance was afterwards largely used by American yachts, and also with a lesser degree of popularity in British craft. Dixon Kemp said that in 1889 a gentleman residing in Formosa sent him a model of a surf sailing boat used by the natives. The boat consisted of a number of bamboos lashed together as a raft and curved in the form of a butcher's tray, and it had three movable centerboards which could be pushed up and down through the bamboos. The passengers sat in a sort of tub lashed just abaft the mast. Kemp thought that this method of using the centerboard was that which must have given Schank his idea of adapting it to a vessel.

The *European Magazine* of 1792, discussing Capt. Schank's invention of three sliding keels as fitted to H. M. S. Trial and H. M. S. Lady Nelson, declared that the public were indebted for it to the Indians of South America, whose balsas, described in Ulloa's voyage, 1735, had these sliding keels. The sliding keels, Kemp tells us, were seen by Pizarro two centuries earlier, 1535, because in Prescott's history of the Conquest of Peru is to be found the following passage:

"As he (Pizarro) drew near, he found it was a large vessel, or rather raft, called balsas, consisting of a number of huge timbers of a light porous wood tightly lashed together, with a frail flooring of reeds raised on them by way of deck. Two masts or sturdy poles erected in the middle of the vessel sustained a large square sail of cotton while a rude kind of rudder, and a *moveable keel made of plank and inserted between* the logs enabled the mariner to give the direction to the floating fabric which held on its course without the aid of oar or paddle."



FIRST TRIANGULAR CENTERBOARD, DESIGNED BY CAPT. SHULDHAM WHILE A PRISONER AT VERDUN IN 1809. BELIEVED TO BE THE FIRST CENTERBOARD EVER INVENTED

Thus so far as the historical origin of the centerboard goes, it seems pretty clear that it is extremely ancient, for, as Dixon Kemp put it, "whether a Chinese raft got blown to Peru, or whether a Peruvian log raft got blown to China, and so communicated the idea cannot now be determined, but there is no doubt the British have no more claim to the actual invention of the sliding keel or centerboard than any of the United States citizens have. Capt. Schank it is evident, as remarked in the *European Magazine*, merely adapted the South American sliding keels to the hulls of deep sea going vessels; while Capt. Shuldham of the English Navy, further improved on the adaptation in 1809 by pivoting the board at one corner."

Evelyn in his diary (November, 1622) records that Sir William Petty invented a "vertical hung on hinges for the improvement of the sailing of ships," but we should say that Petty's idea was adapted from the lee boards of the Dutch.

Hosmer on Navigation

THE great need of ships of all kinds is sorely felt and now that immense appropriations have been made and contracts let for hundreds of merchantmen as well as ships of war, there is soon to come an urgent call for men to man them. The science of navigation must, of course, be understood by all who would serve in an official capacity, and *Navigation* by Geo. L. Hosmer, Prof. of Engineering at the Mass. Inst. of Technology, is a very practical handbook on the subject—a book written to aid those who wish to study navigation with the idea of passing examinations to obtain an officer's license. Unlike many works of this kind, this book does not require a higher knowledge of mathematics but only a simple understanding of common arithmetic. As no theory or algebraic formulas are added, the problems of working out the ship's position are accomplished through the simple working rules which forms the daily routine of every practical navigator aboard ship. The author has presented an important subject in a clear and simple manner—in every day English without omitting anything essential. The book is of handy pocket size and is well bound in serviceable cloth. Price $1.25 net. Copies may be ordered through YACHTING or from the publishers, John Wiley & Sons, 432 Fourth Ave., New York.

THE BUYERS' GUIDE

The Service It Gives to Yachtsmen

The Buyers' Guide is ready to give full information about any article of equipment in which you may be interested and to purchase for the reader anything from a boat nail to a completed boat

Jot down the numbers on the attached coupon and the Buyers' Guide Service will do the rest, promptly and without charge or obligation

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5-18

32 THE UNDERLIGHTED COMPASS SAVES STRAINING THE EYES WHEN STEERING A COURSE AT NIGHT. THE ELECTRIC LIGHT BENEATH THE CARD GIVES A SOFT, DIFFUSED ILLUMINATION FREE FROM THE ANNOYING REFLECTION FROM THE GLASS WHICH IS ONE OF THE GREAT DISADVANTAGES OF THE ORDINARY COMPASS USED AT NIGHT. AND AS THE LIGHT IS DIRECTLY FOCUSED JUST WHERE THE HELMSMAN NEEDS IT—ON THE CARD, EVEN THE NOVICE AT THE WHEEL IS ENABLED TO HOLD A TRUE COURSE WITHOUT CONFUSION

41 WITH AN EVINRUDE OUTBOARD MOTOR CLAMPED TO THE STERN OF SKIFF OR CANOE THE OARS MAY BE UNSHIPPED AND THE CRAFT SPEEDILY PROPELLED WITHOUT WORK AND WITHOUT TROUBLE. THIS LITTLE PORTABLE MOTOR OF THREE-HORSE POWER IS USEFUL ALIKE AT THE SEASHORE, ON LAKE OR FOR DRIVING A CRAFT ON RIVER FOR BUSINESS OR FOR PLEASURE. BEING COMPACT AND NOT TOO HEAVY TO CARRY IT HAS BECOME A MUCH USED ARTICLE OF EQUIPMENT FOR THE VACATIONIST

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40. Arrow Motor & Machine Co.
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Engines, Marine

4-CYCLE, UNDER 100 H.P.
42. Gray Motor Company
45. Gas Engine & Power Co. & C. L. Seabury Co., Cons. (Speedway)
47. Frisbie Motor Co.
48. New York Yacht Launch & Engine Co.
49. Wolverine Motor Works.
50. Buffalo Gasolene Motor Co.
51. Sterling Engine Co.
52. Mianus Motor Works.
53. Niagara Motors Cor.
55. Fay & Bowen Engine Co.
57. Van Blerck Motor Co.
60. Murray & Tregurtha Co.

4-CYCLE, OVER 100 H.P.
45. Gas Engine & Power Co. & C. L. Seabury Co., Cons. (Speedway)
50. Buffalo Gasoline Motor Co.
51. Sterling Engine Co.
56. Duesenberg Motors Corp.
58. Automatic Machine Co.
130. Driggs Ordnance Co.
51. Van Blerck Motor Co.

THE BUYERS' GUIDE

What It Does for the Marine Trade

By listing their names and merchandise in the Buyer's Guide manufacturers and dealers will be in a better position to serve the yachtsman

Do you know that in 1917 inquiries to this department resulted in the purchase of $45,592.32 worth of boats, engines and accessories?

2-CYCLE, UNDER 50 H.P.
42. Gray Motor Co.
45. Gas Engine & Power Co. & C. L. Seabury Co., Cons. (Speedway)
52. Mianus Motor Works.
144. Arrow Motor & Machine Co.

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1. C. D. Durkee & Co.

Flags
1. C. D. Durkee & Co.
2. G. B. Carpenter & Co.
33. W. & J. Tiebout.

Glue (Marine)
69. Jeffery's, L. W. Ferdinand & Co.

Hollow Spars
115. Pigeon Fraser Hollow Spar Co.

Galley Supplies
92. G. Washington Sales Co.

Ignition Appliances
71. Splitdorf Electrical Co.
73. Bosch Magneto Co.
74. Dayton Electrical Mfg. Co.

Knock-Down Boats
117. Brooks Mfg. Co.

Lighting Outfits (Electric)
79. Prest-O-Lite Co.
80. Dayton Electrical Mfg. Co.

Lighting Outfits (Acetylene)
81. Prest-O-Lite Co., Inc.

Life Preservers
143. International Life Suit Corporation.
25. Universal Safety Mattress Co.
29. Life Preserver Suit Co., Inc.

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3. Wilcox, Crittenden & Co.
82. L. O. Koven & Bros.
2. G. B. Carpenter & Co.
1. C. D. Durkee & Co.
33. W. & J. Tiebout.

Miscellaneous
90. Standard Oil Co.
132. Sound Machine Co.
95. B. F. Goodrich Rubber Co.
96. Sperry Gyroscope.
7. U. S. Rubber Co.

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137. J. H. Curtiss Co., Inc.

1 A DURKEE COMBINATION BITT AND BOW LIGHT IS FURNISHED IN EITHER BRONZE OR GALVANIZED IRON, AND FORMS AN UNIQUE AND USEFUL ARTICLE OF EQUIPMENT SUITABLE FOR THE SMALLER MOTOR CRAFT. IT SERVES AS AN ELECTRICALLY ILLUMINATED HEADLIGHT AND AS A TOWING BITT—TWO VERY NECESSARY ARTICLES NEATLY AND SUBSTANTIALLY COMBINED INTO ONE

3 THE WILLCOX AND CRITTENDEN AUTO BOAT STEERER IS A SUBSTANTIALLY MADE AND SERVICEABLE FITTING. THE STEERING-POST IS FORMED OF HEAVY BRASS ENCLOSED IN AN OUTER BRASS TUBE WHICH INSURES SAFETY AND CONVENIENCE. CONTROLLING LEVERS FOR SPARK AND THROTTLE ARE CARRIED INSIDE THE OUTER TUBE AND THE HAND LEVERS ARE MOUNTED ON A QUADRANT

ON THE LARGE STEERING WHEEL

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85. Noyes Machine Co. (Feathering).

Propellers, (Solid)
88. Hyde Windlass Co.
89. Columbian Bronze Corp.

Reverse Gears
94. Paragon Gear Works.

Sails
97. Wilson & Silsby.
98. Jno. Curtin, Inc.
99. Geo. B. Carpenter & Co.
100. Wm. H. Griffin.
101. Ratsey & Lapthorn.
102. Boston Yarn Co. (Lowell Duck).
103. Bottger Bros.
104. Briggs & Beckman.

Searchlights (Electric)
105. Dayton Electrical Mfg. Co.
106. Cell Beam Corp.

Spray Hood and Awnings
1. C. D. Durkee & Co.
2. G. B. Carpenter & Co.
143. C. P. McClellan.

Steering Gears
109. Edson Mfg. Co.
1. C. D. Durkee & Co.
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Stoves (Yacht)
112. Stamford Foundry Co.

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140. Tate Electro Waterproofing Co.

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1. C. D. Durkee & Co.
2. Geo. B. Carpenter & Co.
3. Wilcox, Crittenden & Co.
33. W. & J. Tiebout.

The New Officers of the Pilgrim Yacht Club

AT the annual election of the Pilgrim Yacht Club recently held, the following were elected for the year 1918:

FLAG OFFICERS

Commodore, George E. Horton; Vice Commodore, Edw. Moore; Rear Commodore, Jacob Stillwell; Recording Secretary, Alfred Haner; Financial Secretary, Edw. Hymas; Treasurer, A. Shields; Fleet Captain, L. B. Smith; Fleet Surgeon, M. Thielemann; Chaplain, Alfred L. Cowles.

BOARD OF TRUSTEES

John Byrnes, Chairman; Arthur Nevins, Otto Beck, L. B. Smith, Samuel Keene.

HOUSE COMMITTEE

J. Byrnes, Chairman; A. J. Nevins, L. B. Smith.

ENTERTAINMENT COMMITTEE

Chas. Williams, Chairman; Geo. Strand, Charles Sala, George Montag, Walter Miller, Frederick Hymas.

The Pilgrims have also created an auxiliary fund, from which they are seeing that the boys of the Club who are serving in the United States armies and navy are well supplied with smokes and other articles they may desire while in service—and have suspended the dues of such members, carrying them in good standing on their roll until they return.

To Make Your Boat Leak-Proof

L. W. FERDINAND & CO., 152 Kneeland St., Boston, Mass., are about to issue a new booklet—How to Make Your Boat Leakproof with Jeffery's No. 7 Black Soft Quality Marine Glue. The following paragraph taken from page 4 will give boat owners some idea of the contents: "We believe every owner of a boat will be interested in this booklet, and he should immediately ask for one. Will be sent free upon request."

Van Blerck Move to New Quarters in New York

EFFECTIVE May 1st, the address of the Executive Offices of the Sales and Service Department of the Van Blerck Motor Company will be 30 Church Street, New York City. The principal reason for making this move is to obtain more space as the business of the company has increased to such an extent that larger quarters are absolutely necessary.

This move has also been influenced by the necessity of consolidating the offices of the general manager, the sales manager and the service manager.

The new offices at 30 Church Street are located on the 4th floor and occupy rooms 419 to 427 inclusive. A complete stock of Van Blerck motor repair parts valued in excess of $25,000.00 will be carried in stock in addition to which a large display room is provided where the current models of the Van Blerck engines are exhibited to good advantage, enabling prospective purchasers to actually see the motors and look them over at close quarters.

All correspondence, inquiries, etc., pertaining to sales or service of the Van Blerck Motor Company should be addressed to the new executive offices, 30 Church Street, New York City. Only correspondence directly concerned with factory matters should be addressed to the factory at Monroe, Michigan.

Mr. F. B. Sexton, the sales manager of the Van Blerck Motor Co. in announcing the change of address particularly emphasized the fact that the new executive offices will allow the Van Blerck Motor Company to render an even more prompt and efficient service to both old and new purchasers than in the past. He extends on behalf of the company a cordial invitation to all readers of this magazine to visit the new offices and look over the new model "M" Van Blerck which caused so much comment and interest at the recent New York Motor Boat Show.

Mr. Sexton also announced that the Van Blerck Motor Company has recently appointed the Pacific Net & Twine Company, Pier No. 8, Seattle, Washington, as exclusive dealers for Washington and Alaska. This concern is one of the biggest engine and accessory dealers on the Pacific Coast, and now carries a complete line of Van Blerck engines on their floor in their Seattle show room.

Publishers of Yachting, *March 25th, 1918.*

141-145 West 36th St., N. Y. City.

Gentlemen:—

We are enclosing copy for an advertisement which kindly insert for April, May, June and July. We are pleased to say that the Ad we ran last year in your magazine brought us a number of real inquiries and the result was several substantial sales. Showing that your readers are boating men who have the will and the money wherewith to buy.

Very truly yours,

THOS. FLEMING DAY, Inc.

A Few Good Books

(Continued from page 225)

There is apparently no ebb to the ever-flowing tide of literature and among the many good books delivered to the editorial desk for the month, two volumes bound neatly in brown-ribbed cloth well deserve to head my modest list for the month of May.

The Flag Book will appeal to a very wide circle of readers as a useful volume. The flag has always symbolized the ideals and inspirations of the human race and now that a large part of the world is fighting under the banners of their respective nations, a book picturing and describing the flags of the world is of especial and timely interest. In *The Flag Book* is found a very comprehensive and attractively written history of the flags of all countries—flags famous in American

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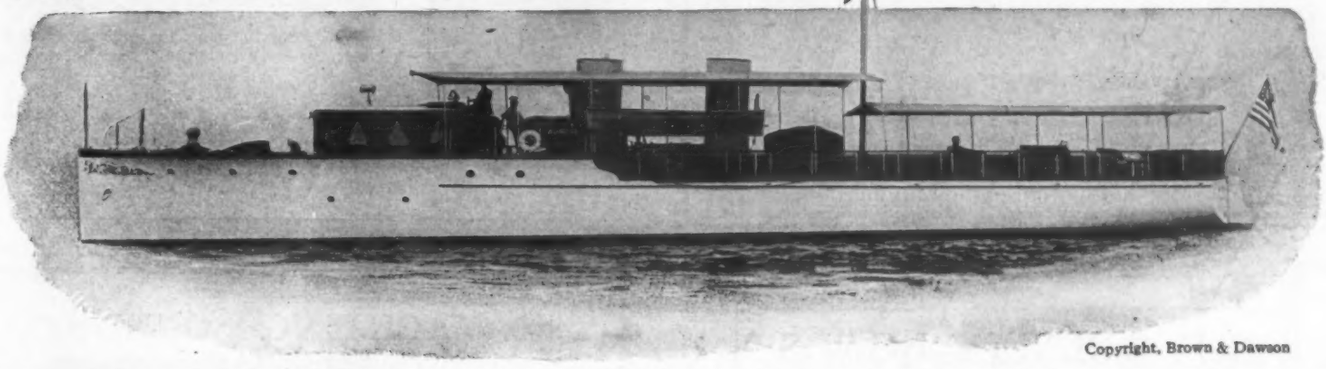

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Aurore, a 96-Footer, built by us for Mr. Stuart Wyeth.

History, the banner of the Vikings, the flags of Columbus, the Revolution, the Liberty Tree flag and hundreds of others. Each and every nation is represented and as each flag is reproduced in its natural colors and its origin briefly described, the book is of distinct educational value for the children as well as forming a referenc evolume for every man's library. The history of the American flag is naturally the most interesting chapter in the book and the historical facts leading to the adoption of the stars-and-stripes is interestingly related. All the State flags and seals are likewise included in color and text and the insignia of all the uniformed forces of the United States is inserted to make this a pictorial encyclopaedia on the subject.

The Book Of Birds is a similar reprinted volume and arranged in the same attractive manner. In this volume all the common birds of town and country are illustrated in natural colors and a full description of each species is clearly and briefly mentioned. Some two hundred and fifty birds are included and the pictures, reproduced from paintings by Louis Agassiz Fuertes are particularly fine. The text includes chapters on the general habits and migrations of all our common birds and there is an interesting chapter on American game birds. *The Bird Book* is a valuable acquisition to every library and of interest not only to the naturalist and sportsman but of real instructive worth to the children, who will find many hours of pleasure in looking at the attractive pictures and will be able to identify a large number of them when seen in the parks and in the shrubbery about the home.

The Flag and The Bird Book are reprinted from the pages of the Geographic Magazine and are published by the American Geographical Society at 16th and M Sts., Washington, D. C.

South Shore Yacht Club

MILWAUKEE, WIS.

YACHTING,
New York City.
Dear Sirs,

In line with your request to furnish you with the names of yachtsmen in the service of our country, I am giving you a list from our Club. No doubt many of them are keeping in touch with the yachting game by reading Yachting wherever they can get it, and they will be glad to see their names enrolled in its pages.

Laurence Anderson, Co. L, 340th Wis. Infantry, Camp Custer, Battle Creek.
Leo Arnstein, Grand Office Training School, Club No. 2, San Antonio.
G. A. Bading, Deming, New Mexico.
Earle Beutler, Co. A 107th Field Signal Battalion, Camp McArthur, Waco.
Harold Crull, Co. A, 107th Field Signal Battalion, Camp McArthur, Waco.
Clifford Gosch, Co. C, 107th Field Signal Battalion, Camp McArthur, Waco.
Ray J. Krueger, Medical Dept., 120th Field Artillery, Camp McArthur, Waco.
Thos. Lee, U. S. S. Gresham, 5th Naval Dist., Norfolk, Va.
E. J. Presser, 121st Field Artillery, Camp McArthur, Waco, Tex.
Edw. Quinlan, Co. L, 340th Infantry, Camp Custer, Battle Creek.
Marion Roberts, Battery D, Light Field Artillery, 120th Reg., Waco.
Edw. Zarling, 245th Aero Squadron, Kelly Field, San Antonio, Tex.

Respectfully yours,
Chas. E. Kuehn, Secy.
South Shore Yacht Club.

With the wild scenery of the Orkney Islands, lying off the rugged coast of Scotland, furnishing much descriptive charm and choosing the quaint little town of Kirkwell for the setting, Amelia E. Barr has written a charming tale in *The Orkney Maid*. Of Norse inheritance are these island folks and with the tang of the sea in their blood the story is wholesomely saturated with the atmosphere of the wind-swept blue. Mrs. Barr, who has written novels for more than two score years, intimately knows the people of whom she writes and her characters are humanely real—simple sturdy men and women who talk entertainingly with all the little provincialisms which adds color to the sober seriousness which is usually associated with the Scottish character.

The fact that the story is placed at the time when the British and French were fighting side by side at Sebastopol, is of more than passing interest at this time. It was during this conflict that the Red Cross came into being and now that this organization is accomplishing so very much in the world war, it is interesting to read of its first struggles of mercy, when Florence Nightingale and her few companions went forth to administer aid to the wounded.

The Orkney Maid is not therefore lacking in historical facts, but the love affairs of two opposing characters are by no means neglected, and the tale is charmingly told as the Orkney folks struggle along, displaying faults as all humans do, but gaining a wider understanding of life and developing finer and more nobler characters with the years. *The Orkney Maid* is a good novel and comes from the press of D. Appleton & Co., at 35 West 32nd St., New York City.

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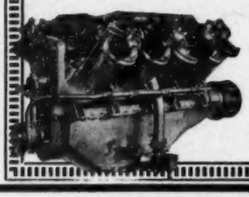

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Buffalo, New York

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By GEORGE L. HOSMER

Associate Professor of Topographical Engineering, Massachusetts Institute of Technology

is just the book for you. Presents the subject in a *clear* and *simple* manner, yet omits nothing essential.

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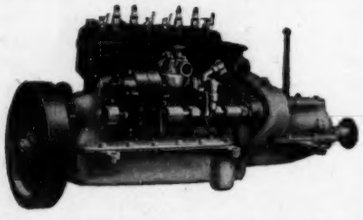

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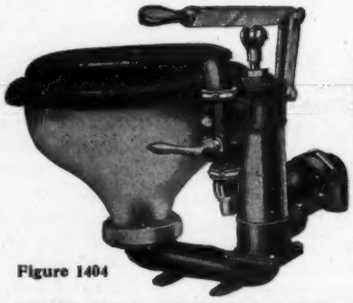

Figure 1404

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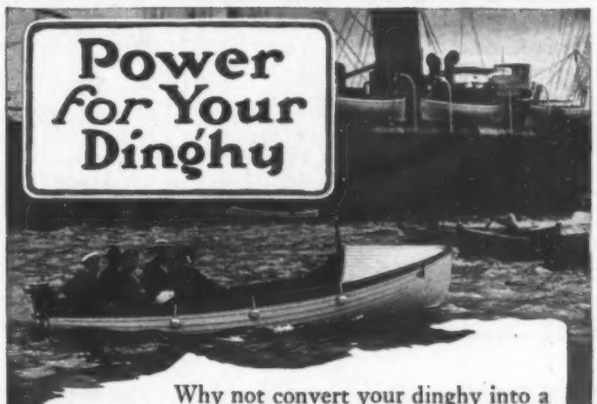

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It furnishes a surprising amount of power for its size and the cost of running it is very little.
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Waterproof Liquid Glue is used for the same purposes as No. 7, Soft Quality
This glue will also attach canvas, cork, felt, rubber, leather, and linoleum to iron, steel, or wood.

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Best Filler for Canvas
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Notes from Log of an Old Whaler

(*Continued from page 223*)

of their vessels, captains have observed that when their boats were attacking a whale to the leeward, a school several miles to the windward, and out of sight of the boats, would show signs of alarm and retreat the moment the first blow of the harpoon was struck. Sound was not the means of communication, as the distance was too great, and moreover the whalemen insist that whales only signal by sound in the act of *lob-tailing*. In doing this the whale rises up in the water with head down, and thus poised swings from side to side, sweeping a radius of thirty feet with great violence. The concussion of its body with the water can be heard for many miles while the water is a mass of foam.

Breaching is another strange habit common to all varieties of whale. The animal elevates three-fourths of its body out of the water and then falling heavily on its side with a resounding splash. In *sounding* the whale raises its head a few feet out of the water, gives a long spout, rounds its back and spins as on an axis. Rounding higher by degrees it gently lifts its massive flukes without the least spray to a surprising height and the next moment smoothly disappears beneath the surface in a perpendicular dive. Considering the size and apparent unwieldly proportions of the monster the litheness with which these movements are made is remarkable. The sea is not disturbed and not the least sound is heard. Sounding is a certain indication of sperm-whale on a cruising ground, as the right-whale is never found in water so deep that the act is possible, and as the humpback and sulphur bottom whales do not intrude on sperm-whale ground.

Another habit is *settling* which is often a means of safety to the whale when diving or running will not allow its escape. From a position of inaction the whale can suddenly sink without a stroke of the tail or fins and without apparent effort. It is as a mass of lead and sinks from the head of a persuing boat so rapidly that the harpoon may be darted but not reach its mark.

Whales are supposed to live to a great age and a story is told of a sailor whose boat was wrecked while he and his messmates were tossed high into the air by the flukes of a fighting whale. As he came down, after half an hour, the whale was waiting with open mouth, and instead of sinking as deeply into the sea as he had been thrown in the air, he slid smoothly down the whale's throat. As soon as he recovered his breath the sailor drew out his tobacco box and helped himself to a liberal quid. Presently he rose from the soft but moist couch on which he had been thrown, and surveyed the apartment, which contained many wonders, you may be sure. Some writing on one of the walls attracted his attention and on examination it proved to be the words "Jonah, B. C. 862." This amused him so much that the quid fell out of his mouth and the whale at once began to writhe and show a violent dislike to the nicotine. A happy idea occurred to him and he cut his plug of tobacco into small bits which he distributed on the floor. The whale then heaved more violently than ever and while Jack was holding his sides at the joke, he was shot into the water and almost on board one of the ship's boats. Some of his comrades doubted his wondrous story, but for the benefit of unbelievers he had brought back with him a pocket knife with a buckhorn handle on which were stamped Jonah's initials and an American eagle.

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Piering

(Continued from page 233)

Grundy right way up and shaken Satan and Floe from out of the folds of her raiment,

36. He turned to the maiden who was more beautiful than all the others and said unto her, "Go thou and get water, with peradventure a small spot in it, that we may succour this woman."
37. And unto Satan he said many things.
38. But Satan stood afar off, and answered not, and ever and anon he caught a passing fly and swallowed it.
39. And the Captain of the Patrol-boat stood over the maiden that was more beautiful than all the others and ordered her in her ministrations.
40. And she obeyed him with wonder, for all men had been as doormats before her.
41. And when Mrs. Grundy was recovered and had been returned to her place, the Captain lifted his voice and said to the maiden:
42. "Oh, maiden! I hunger and am athirst. Take me to a place where I may get food and drink, for I am a stranger here."
43. And the Maiden looked into the Captain's eyes, which moved quickly in his head, and, taking his arm, she said: "Oh, Captain, the Dorothy is nigh unto this place." And she led him forth.
44. And the young men kicked themselves.
45. And Satan, who followed at a distance, murmured "Clicked!"

Reprinted from YACHTING MONTHLY

Navigation for Amateur Skippers

(Continued from page 242

bring the lower limb of the direct image tangent to the reflected upper limb. Read the instrument and give the proper algebraic sign according to the above rule. *One half the algebraic sum of the two readings is the index correction.*

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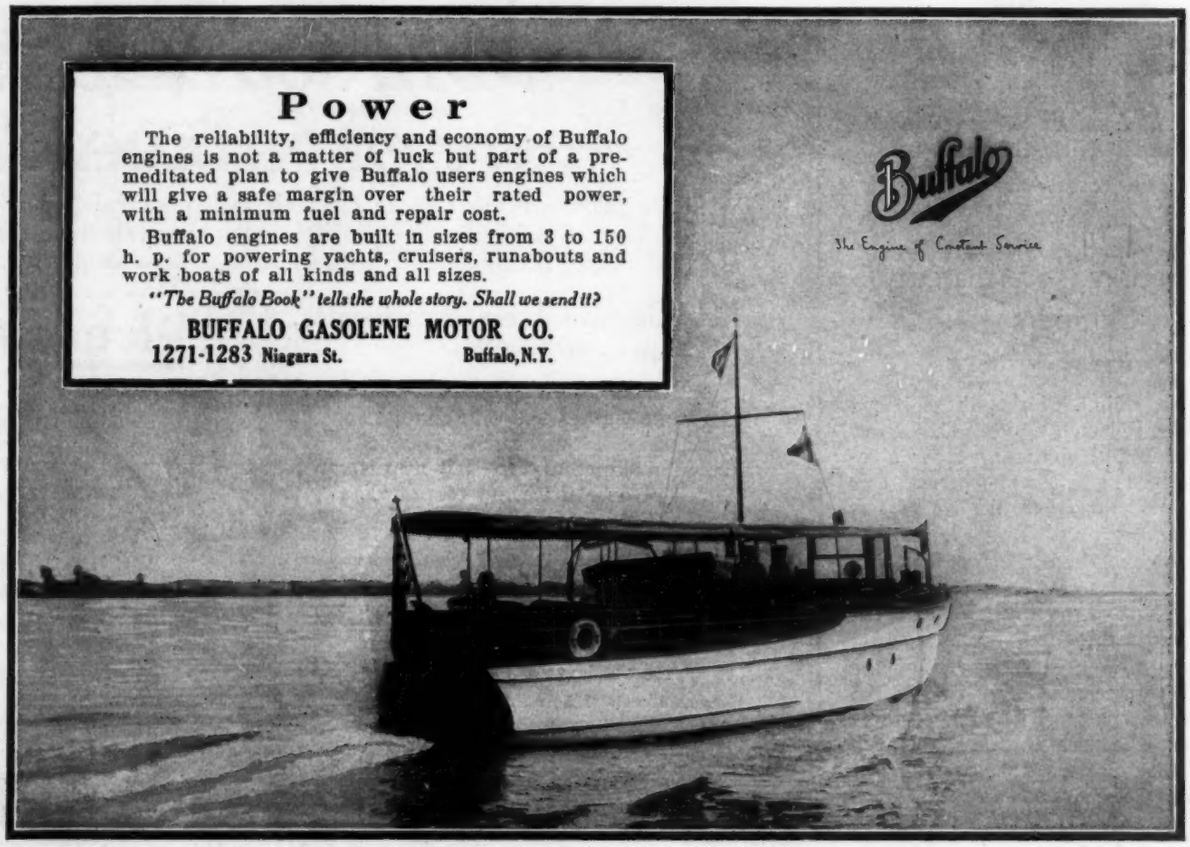

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